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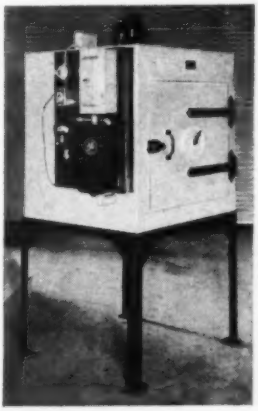

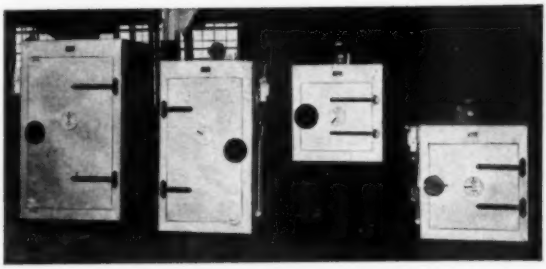

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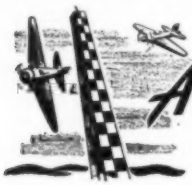

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Zapon Wrinkle Finish proves itself a consistent winner in a variety of fields, from flashlight cases to beverage cooler cabinets such as the one illustrated. This equipment, by Victor Products Corp. of Hagerstown, Md., is finished with black wrinkle. A range of attractive colors is available.

Zapon Wrinkle finish is outstanding in uniformity of pattern, durability in use and beauty of appearance. Zapon Wrinkles bake out satisfactorily on a variety of schedules.

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INDUSTRIAL FINISHES

Seventeenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVII, No. 10 **AUGUST, 1941** **$2.00 a Year**

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Letters from Readers...

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Tumbling Materials

We are of the opinion that the tumbling method of finishing can be applied to some of our products, and therefore request that you direct us to suppliers of materials used for this purpose.—X. .Wood Products Co.

Metal Casket Finish

We are interested in "Finishing Metal Caskets" by Al Matlock in July issue of INDUSTRIAL FINISHING, page 16, regarding concentrated transparent enamel. We would like to inquire about the source of supply for this material, as it reads as though this would be more effective than analine dyes in the top coat, which we are using.—Z. Casket Co.

Information given.—Ed.

Substitute for Aluminum

We noticed some time ago your articles on substitutes for aluminum.

Our laboratories have developed and field tested a completely gas-proof paint for exterior metal surfaces. In direct heat tests, with standard volatiles at controlled temperatures, our new product was found to have a heat-reflecting factor ten degrees greater than that of aluminum. It was also found to retain its heat-reflecting qualities far longer than do top grade aluminum coatings.

This new product which is called "Alumalite," is especially recommended for application to large storage tanks, railway tank cars and the like. It has excellent one-coat coverage and will not yellow or otherwise discolor when subjected to acid fumes, brine solutions, or reidual gases.

Alumalite is made for either brush or spray application, and may be reduced up to 20% with any petroleum-base reducer.

Refineries, tank manufacturers, and tank-car producers should find this new product of interest and we are prepared to send a free sample upon request. — Seidlitz Paint & Varnish Co., Kansas City, Mo.

S—— Company Found

Referring to the second published letter on page 4 of July 1941 issue, wherein "C. R. Co." asked for an aluminum enamel manufacturer named Sutpin Co. or Sutkins, etc., one of our thoughtful readers sends an unsigned note to the effect that the company in question is W. J. Sutcliffe Co., East Rutherford, N. J. Thank you very much.

Porcelain Enamel Objects to Miskella's Article

I have before me a copy of the July issue of INDUSTRIAL FINISHING and am reading an article by Mr. Wm. J. Miskella of Fostoria Engineering Service of Cleveland. On page 50 I note that Mr. Miskella says that porcelain

a real **SUBSTITUTE** *for* **ALUMINUM** *paint!*

NEW-LUMINUM

Working properties and appearance make **NEW-LUMINUM** one of the most popular and practical developments of today. Available now!

Write for detailed information and prices.

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Synthetic Baking Enamels

- **Now in successful production use by leading manufacturers in place of aluminum and other restricted finishes.**
- ***Flo-Bak* Defender Enamel is an excellent one-coat finish—provides good coverage—can be dipped or sprayed—bakes ten minutes at 300°—supplied in wide range of colors.**
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As a result of the scores of contracts we have handled along this line—all requiring specialized skill—a wealth of experience has been accumulated. This is yours to draw on.

The illustration shows a special painting machine built for a Detroit automobile plant to paint front and rear axles. A combination of "flow and spray" is used. This insures all parts of axles being fully covered with paint.

The ISM Engineers will be glad to work with you on any industrial problem pertaining to the sheet metal industry.

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Manufacturers of Hydro-Whirl Spray Booths, Drying and Baking Ovens, Dust Collectors, and Special Equipment

626 E. FOREST AVENUE **DETROIT, MICH.**

enamel is no longer important for coating the unit used in fluorescent tubes.

I believe that Mr. Miskella has been erroneously informed on this particular point. At the present time, practically all of the high-class lighting fixtures, which are using fluorescent tubes, are using porcelain-enamel reflectors. This is because no aluminum is available for the portion that has been made in aluminum . . . —Chas. S. Pearce, Managing Director, Porcelain Enamel Institute.

That Wood Finishing Report

We have read, in your June issue of INDUSTRIAL FINISHING magazine, that the Wood Finishing Report has been made by the Committee on Wood Finishing of the American Society of Mechanical Engineers, Wood Industrial Division.

As we do not know the address of that committee, we are sending you 50 cents which we ask you to kindly send to these people and request them to mail us their report.—M. Furn. Co.

In your June issue of INDUSTRIAL FINISHING, you had an article on page 70 relative to a report by the American Society of Mechanical Engineers, Wood Industries Division. Would you kindly advise us as to whom to write in order that we may secure one of these?—N. R. S.

The address of the Society is 29 W. 39th St., New York, N. Y., Attention, Ernest Hartford, Executive Assistant Secretary.—ED.

Heat-Resisting Paints

In the April issue of INDUSTRIAL FINISHING, pages 18-19, appeared a short article entitled, "Heat Resisting Paints." Would it be possible for us to secure more information on this article, especially the manufacturer of this product?—The National Research Bureau, Inc.

We are referring you to the company whose bulletin was quoted, The New Jersey Zinc Sales Co., Inc., Front & Fletcher Streets, New York.—ED.

Plastic Materials

I have noted that you supply information on the source of supply of materials, as mentioned in articles in INDUSTRIAL FINISHING. We are interested in obtaining information on plastic materials, molds and methods.

On page 96, of June 1941 issue, we notice an item about a material called "Lucite." Can you supply us with the name of the makers of this ma-

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We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

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We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

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MODERN PRODUCTION FINISHES

Elizabeth, New Jersey

terial? We are interested in various types, and will greatly appreciate whatever you may feel justified in sending us along this line.—A. T. Co. (Toy, Game and Novelty Prod.)

"Lucite" is a product of E. I. du Pont de Nemours & Co., Wilmington, Dela. Further information is being sent you by letter.—ED.

Tumblers: Roller Coaters

Will you kindly send us the names of several manufacturers of tumblers and roller coaters for use with lacquer and synthetic materials? We are interested in selling this type of equipment in Southern California. This is a new firm, and we would be pleased to receive your magazine each month.—Spray Equipment Co., Los Angeles.

Information supplied.—ED.

Decals Wanted

WILL YOU PLEASE MAIL US THE NAMES OF PEOPLE WHO MANUFACTURE DECALCOMANIAS. —S. A. & Son.

Articles Welcome

We are writing an article on "Graining Rollers, Their Use and Care," and are wondering if it would be acceptable to you for printing in your magazine when space is available. Please let us know.—R. L. Co.

Sure, send it along. We are always eager to get original exclusive articles that contain something of interest and value to our readers.—ED.

"Clevo" Is Found

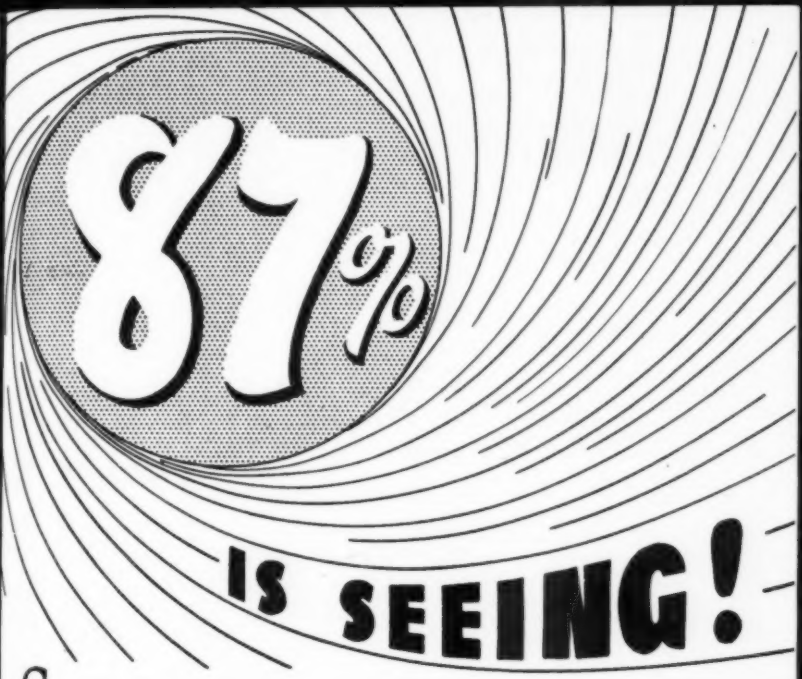
Referring to the inquiry in the July issue of INDUSTRIAL FINISHING (pages 4 & 7) regarding "Clevo," we wish to inform you that the Clevo Co. is located at Second and Boston Sts., Everett, Mass.—Howe & French, Inc.

Thank you for your prompt and effective cooperation.—ED.

Gold Plate Finish

In your June edition of INDUSTRIAL FINISHING, on page 88, under the title, "Gold Plate Finish," there is something mentioned about gold powder mixed with French varnish. Will you

(Continued on page 74)



So take the sample of Lacquer, Sealer, Stain, Enamel or Filler that the man says is as good as the genuine Stille-Young product and put it up against Stille-Young material. Right in the same process—on the same pieces—in the same room. • Let's see who's right. • And when you get through, remember that 87% of all first impressions depend entirely on what is seen. • The finish is seen first of all and does a lot toward selling your product.

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Raw materials shortages due to Defense Work, which must be served first, have necessitated increased research and development work in order that the right finishing material be supplied to meet your individual requirements. Our facilities have been consistently expanded

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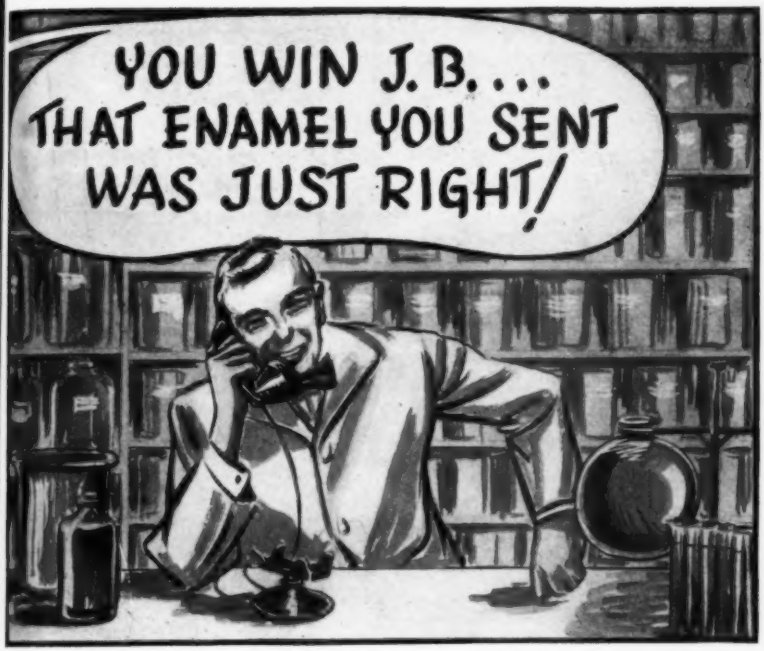
HIGH POINT, N. C.



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*Indianapolis, Indiana *High Point, N. C. *Gardner, Mass.

LILLY VARNISH COMPANY

INDIANAPOLIS, IND.

Great Britain and Europe: Apply Jensen & Nicholson Laboratories, Stratford, London, England

Styles at th

BY ROSALIE FLANK
Style Authority

Photographs, courtesy of American Furniture Mart

A cocktail table in light mahogany, serving also as a lamp table. The light wood lamp has a brass base. Table is placed between the sections of a West Coast type of sectional sofa.

PRELUDE to the style theme which ran through the summer market at the American Furniture Mart, July 7 to 19, 1941, was the necessity to conserve materials, to substitute materials cut off by government priorities, and to simplify designs in order to speed up production and to build furniture to meet the needs and taste of the new market which the national emergency had created.

Taking all of these variations into consideration, designers and manufacturers showed their ingenuity and their understanding by creating new samples which, it is believed, will make styling history for many years to come.

In an effort to conserve both materials and labor, all types of home furnishings both period and contemporary were distinguished by their utter simplicity, a simplicity which beautified the pieces rather than cheapened or destroyed the design.

Eighteenth century groupings no longer stressed "authenticity" but rather an amalgamation of design into a common denominator of "18th Century," simplified, modernized, adapted to American production and American living, and typical of the new trend of thought.

Sectional Pieces to Group in Variety of Combinations

Modern pieces took into consideration the new markets opening before them—the small homes of defense workers, the simplified tastes of American people, and the necessity to conserve space and provide maximum beauty and utility. Accordingly, most of the modern pieces were of the sectional

at the July Furniture Show

type. These may be used in a variety of combinations—twin dressers, twin chests, bed-height and dresser-height night stands, combination bookcase desks, and sectional upholstered pieces and corner units appearing in many lines.

Avoiding the use of metal pulls, most modern groupings featured either finger niches instead of pulls, wood pulls which formed the design of the case pieces by their distinctive arrangement, or plastic pulls. Traditional furnishings, though still using metal pulls to some extent, also showed a tendency toward wood and plastic pulls.

Substitute materials were noted in plastics, both in clear and opaque types and in leather trims. The clear plastic was used as bed rails, corner posts, drawer pulls and trims, and was carved to give added decoration.

A definite sign of the American trend of thought was the increased number of Federal pieces, fashioned of mahogany and having crystal pulls and decorated with inlays, carvings or trims of eagles, metal finials, crossed flags and other typical American motifs. Increased interest in Colonial and Early American groupings in native American woods, such as American walnut, oak, maple, birch and cherry gave evidence of the nation's interest, once more, in furnishings of American inspiration.

Contenting themselves with us-

Below: Unique cabinet arrangement in wheat-finished oak. Sectional bookcases provide both cupboard space and storage room. The tiny table may be used as a game or dining table, or folded in half and placed against the wall as a server.

ing native American woods rather than the fancier imported varieties and employing light woods to fashion the popular light-colored suites and novelty pieces, considerable prima vera, light maple and birch, satinwood and oak were seen on modern as well as Colonial and American furnishings.

Painted Furniture; Colored Stencils

Lacquered and painted furniture appeared in the high-style lines; Chateau, Florentine and Melba finishes were used on a distinctive Venetian group. The painted tints used over birch were a soft sky blue, a delicate pink and a soft beige. These were ornamented in gold. Many black lacquered pieces also appeared, not only in Regency design but in 18th Century pieces. These were ornamented with Chinese stencils and trimmed in gold.

Colored stencils of fruits and flowers were used on new breakfast room and dinette groupings made of burnished or lime-oak and trimmed with the colorful stencils. A new finish used by one manufacturer on an attractive kitchen ensemble was termed "Duralite." Colored door and table tops were finished in blue and white two-tone enamel, produced by the use of a double spray gun containing both the blue and white enamels. The crackled finish was a dramatic accent to the plain white structural part of the pieces.

A number of bone white suites made their appearance, both in modern and simplified French designs. These were trimmed with gold or self trimmed with carved pulls which were also finished in the bone-white color.

This dresser is part of a modern group of oak and named "Palm Beach" by its creator. In addition to providing a unique trim, the drawer pulls carry the design motif through the entire series of sectional pieces, unifying the collection. It is typical of the trend toward sectional groupings made up of a series of chests and odd pieces which may be used in many combinations. A feature that will be appreciated by the women is the drop front, glass-covered center section of the vanity which provides a miniature display case for comb and brush sets or other prized possessions.

Dutch and Swiss Influence

A Dutch and Swiss peasant influence was noted in the use of lacquered trims on maple pieces and on colorful lacquered chairs included in the maple groupings. A new cedar chest lacquered a deep green was shown with tiny red hearts and colorful peasant-like designs.

To please the luxury-starved tastes of defense workers now in a position to show new affluence in their homes, occasional pieces, heavily carved and fitted with red marble tops, made their debut. Built to retail at $75 and $85, commodes, drum tables and cocktail tables were included in these ornamental groupings.

Diminishing stocks of certain woods saw such woods as Australian maple and Norwegian birdseye maple being used on table tops of occasional pieces. Transfer patterns with reproductions of marble, leather and rare materials were also effectively employed.

Oak; Birch; Maple; Ash

Wood kitchen ensembles made of oak, birch and maple, replaced some of the chrome formerly shown, although most manufacturers still maintain sufficient stocks of steel and chrome on hand to fill orders during the remainder of the year. Talk of bentwood was heard among several of the chrome manufacturers. However, not before the first of the year will the substitutions be disclosed.

Ash made its debut in one line finished in a medium light tone and trimmed with leather. Its success was indicated by a 'sold-out' sign placed on the suite after the first three days at the market. Oak was used to fashion living room and novelty pieces, as well as case goods and such new finishes as linen, burnished-oak, champaign and tweed were employed.

Children's and juvenile furniture enjoyed an active market, with plastic playing an important role. Cribs made of plastic and models with Plexiglass fronts excited in-

Especially designed for use in a tiny home, this Federal American combination living-room dining-room group answers many problems for home makers. Although period in design, it is truly American both in inspiration and in its adaptability to American homes. The small mahogany china is at home in living room or dining room. The pedestal base mahogany table, with drop leaves, is equally adaptable to both rooms.

terest. An ultra-violet ray, transparent wind-shield, used on a new buggy, was also of keen interest.

Intricate Detail in Some Designs; Use of Leather Increases

The tendency to break up the severe surfaces of the modern case pieces was noted in carved trims on top drawers, ornamented wood drawer pulls placed to form a design on adjoining drawers, routed lines used to outline structural details and elaborate pulls. Eighteenth century pieces employed boxwood inlays and simplified marquetry inlays to overcome their extreme simplicity.

Leather and leather-like materials were used on drawer fronts, dresser tops and occasional pieces and for upholstery. It was finished either a shade darker than the wood or in a pastel tone.

Lamps showed the ingenuity of manufacturers, being fashioned of glass, pottery, wood, leather and straw. Shades were trimmed with fringe, braid, and appliques to give a soft note to the severity of the new furnishings.

Traffic Marking Paint

FIVE MILLION gallons of paint are used annually to keep motorists on the right side of the road, it is estimated by Maurice S. Herbert, paint expert of Krebs Pigment and Color Corp. A steady upward trend in traffic marking has been created by the increasing safety consciousness of the American public and highway officials.

Company experts have now completed three years of study in cooperation with State highway officials on the effects of pigmentation upon the durability of traffic paints. Cross lines painted on various types of highways feature the testing routine. Experimental paints were formulated and applied at identical consistencies and spreading rates. Tabulated effects form a practical basis for laboratory evaluation. The program is continuing, it was emphasized, and exposures are available for inspection.

Studying the effects of pigmentation upon the durability of traffic paints may be divided into four parts, officials said—the effect of various inert extenders; effect of pigment volume; effect of various white prime pigments; and effect of various colored pigments.

Three types of colored pigments, C. P. Chrome Yellow Light, C. P. Chrome Yellow Medium, and "Hi-Way" Red were included in the fourth division of the program. Durability seemed to be the same in the two chrome yellows, although the light yellow appeared to have visibility advantages. A pigmentation of straight color with an inert extender proved to be the most efficient, it was disclosed.

"Hi-Way" Red, an entirely new pigment in traffic paint formulation, gave the best durability performance of the prime pigments included in the study. It also demonstrated striking attention-attracting value, which suggests the possibility of its use as a no-passing center line.

An investigation of the six popular inert extenders revealed that magnesium silicate and micaceous talc are the most promising.

Pigment volume is the relation of the volume of pigment to the total volume of the dried paint film, Krebs experts explained. Behavior differs in various vehicles with changes in pigment volume. Forty percent appears to be most desirable pigment volume.—D.

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HOW PITTSBURGH INDUSTRIAL FINISHES CAN HELP ME WITH MY FINISHING PROBLEMS

Please send me, without obligation, your book entitled "Industrial Styling With Color" containing complete information on the free services offered to all users of industrial finishes by the Pittsburgh Plate Glass Company, Industrial Paint Division, Pittsburgh, Pennsylvania.

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STATE_____

Many Manufacturers Find That Pittsburgh's 5-Day Test Helps Them Whip Difficult Finishing Problems.

IF YOU have a knotty finishing problem... if you would like to cut down on costs, speed up production, and reduce the number of rejects... then you owe it to yourself to make a fair comparison test between the finishes you are now using and Pittsburgh Industrial Finishes. Arrange for a 5-day test run. And if your results compare with those of other leading manufacturers, you'll find, generally, that Pittsburgh Finishes help save on operating expenses.

Pittsburgh maintains a corps of trained Technical men for consultation on your finishing problems. These men work with your own department... right in your plant. And when they recommend a finish, you will *know* that it is the correct finish... *custom-made* for your particular product.

Our representative would like to call for consultation.

PITTSBURGH PLATE GLASS CO.
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• The increasing demands for more speed in production are already beyond the capacity of many finishing lines. And we haven't reached peak requirements yet. You must face the fact and prepare for it now.

Spray systems that were adequate a few years ago won't do today. Old, worn finishing equipment must go. And even modern equipment must be unified as a smooth-running, efficient operating system to get full speed.

With a properly planned DeVilbiss Spray-Finishing Line you can always be sure all parts—spray guns, air transformers, pressure feed tanks, air compressors, exhaust equipment, hose, connections and accessories—are all working perfectly together as a unit for maximum results and highest efficiency.

Let a DeVilbiss representative go over your finishing line and advise you on the easiest and quickest way to give 'er the gun.

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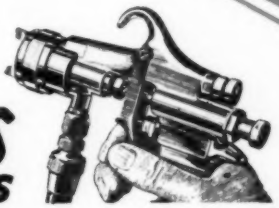


DEVILBISS
SPRAY SYSTEMS

Mahon FINISHING Equipment

Top: Rust Proofing Equipment co-ordinated with Drying Oven for large midwestern plant.

Circle: Spray type, Rust Proofing Equipment, with conveyor.

Both systems designed and installed by Mahon engineers.

RUST PROOFING . . .

A FINISHING operation where results depend on use of the RIGHT equipment

In modern production finishing systems, rust proofing operations are a highly important factor in governing the lasting qualities of any finish. The development of Rust Proofing Equipment demands specialized training and experience, due to the wide variety of parts and products to be treated. Mahon engineers lead the field in the designing of dependable Rust Proofing Systems. Let them demonstrate how adequate Rust Proofing Equipment can be economically fitted to your production layout.

THE R. C. MAHON COMPANY
DETROIT - CHICAGO

Designers and Manufacturers of Complete Finishing Systems, Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Drying and Baking Ovens, Dust Collectors, Filtered Air Supply Systems and Many Other Units of Special Production Equipment.

MAHON

Variety of Finishes Can Replace Aluminum

SPEEDING UP our defense activity has resulted in an almost complete shortage of all types of aluminum bronzes for use as finishing material. Paint manufacturers can obtain aluminum bronzes only by means of an extension of preference rating on Pd-3 forms issued by the O.P.M. These are issued only to enable paint manufacturers to furnish aluminum finishes to contractors to the Army, Navy or other defense activity. The fact that small lots of aluminum powder or paste do become available from time to time should not give anyone a sense of security in using aluminum as a standard finish. The fact is that the supply for finishing use is limited and uncertain.

This situation is not necessarily a calamity to all users of aluminum bronze finishing materials. Some companies can use other types of finish which will serve their purpose equally well — perhaps, in some cases, better. While there are many excellent applications of aluminum finish, like many other well promoted good ideas, it has been used in several places where a cheaper product would serve better. It has also superceded the use of color in many places.

At the outset it must be stated that the manufacturer who is using dipping aluminum as a one-coat finish for initial appearance only will be under a handicap to substitute something else. The really phenominal hiding power of aluminum is taken advantage of by these manufacturers. They do it by using a much thinned vehicle and a low concentration of aluminum bronze. The result is good initial appearance, but very little vehicle to bond the aluminum to the surface, and not enough aluminum to form real inter-leafing layers of aluminum flakes. Such finishes permit

BY HARRY DANIELS

For iron and steel parts, use enamels that have rust-inhibitive qualities, to give more durability.

For electrical wiring equipment, use light-colored enamels that have an insulating and protective value.

For decorative effects, pearl-essence lacquers and distinctive color schemes, including striping.

For interior workrooms, white paints, of which there are several; these have high reflective power.

quick corrosion and easy rubbing off (crocking) of the aluminum.

Rust-inhibitive Paints; Light-colored Enamels

The manufacturer who uses aluminum finish on metal, with the intention of making an attractive appearance and obtaining good durability as well, will find that he can obtain just as good results with enamels. An added feature is that enamels can be formulated with a small percentage of rust-inhibitive pigment. The advantages of these rust-inhibitive enamels become more apparent when the finish is used on castings, forgings and stampings that have become slightly rusted in processing.

Aluminum finishes have been popular for electrical wiring equipment. If used for its brightness, it could be replaced to advantage by light-colored enamels. Such an enamel on switch boxes and fuse boxes would have an actual insulating value, as compared to an almost definite conducting property of aluminum finishes, as they are ordinarily applied.

It may be difficult to find attractive substitutes for the currently popular hammered and metallic enamels. However, if the work will stand the added cost, pearl essence enamels can match and surpass the beauty of the metallic finishes.

In maintenance painting there are some applications for which it will be difficult to find substitutes. Aluminum is an excellent seal coat for oily spots and oil-soluble dyes. However some concerns have had success with spirit enamels or shellac for this purpose.

For the painting of ventilating ducts and structural iron work, there are many good proprietory paints that may be used.

Because of the excellent hiding power and initial brilliance of aluminum, many companies have been led to paint large workrooms with aluminum paint, but this is not to be recommended. From an application standpoint, aluminum paint is satisfactory, as it covers so well in one spray coat. It should not be sprayed in large open rooms however, as it makes such an unsightly mess and all-round complaint.

The objection to aluminum paint is that its light reflection is so much less than any grade of white paint. This is true even at its initial brilliance. The comparative reflecting power of white paint and aluminum can be strikingly demonstrated by painting white and aluminum on sections of a wall at right angles to a window, and then observing the sections at various angles in a semicircle based upon the painted area. I can say definitely that those who have been using aluminum paint for workrooms will benefit by changing to one of good mill-whites now available. A few of these materials will cover in one spray coat, with a minimum of non-sticky spray mist.

Presents Opportunity to Use Distinctive Color Schemes

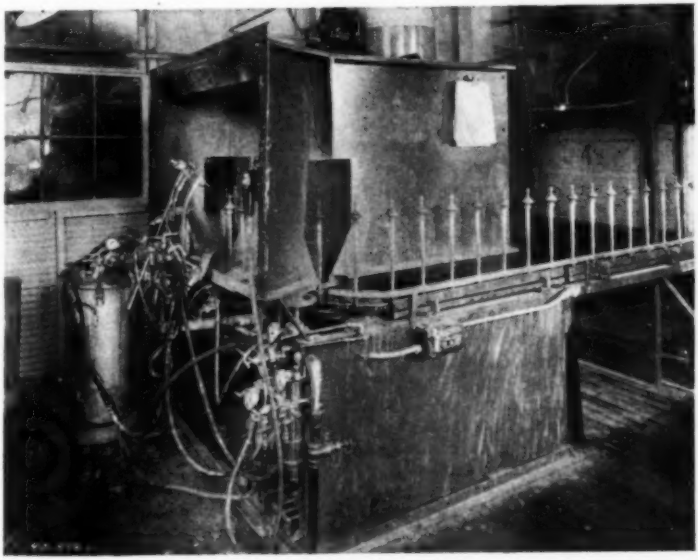
This shortage of aluminum represents an opportunity to present users to inject a distinctive color scheme into their product. It is acknowledged that many products have been finished in aluminum alone, and that it is not considered economical to use a 2-color finish. That may be true, but even a single color, carefully chosen, may be distinctive. In these cases careful thought should be given to the possibility of producing a 2-color scheme by some cheap simple method. For small items the use of a modern striping tool or a small decalcomania comes to mind.

On larger objects, different parts may be painted in different solid colors and a 2-color scheme will be produced by assembly. The shape of the article may lend itself to a second color by a partial dipping operation.

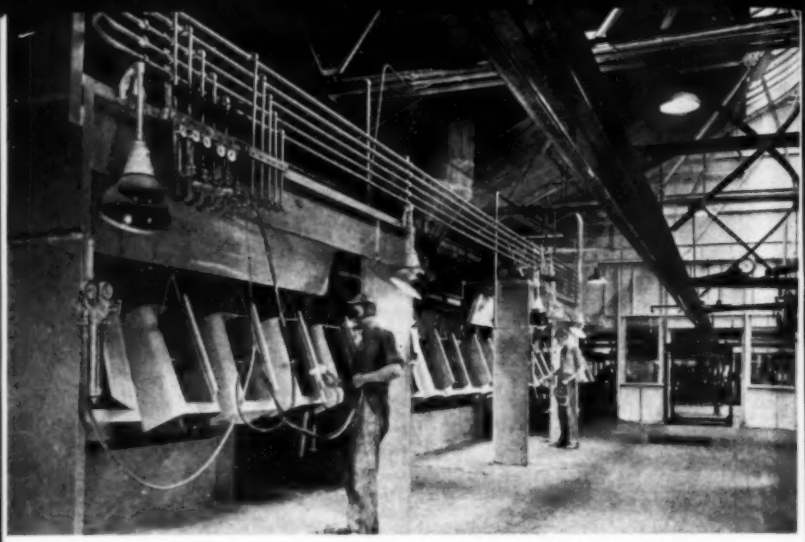
Distinctive color schemes are priceless and often afford the company free advertising. How often one instantly identifies a product by recognizing the color scheme of the package or product or truck, long before the company name or brand can be read.

A distinctive color scheme should be used on every manufactured product. So much has been learned in late years about color harmony and psychology that an infinite number of distinctive color schemes can be created to suit individual problems and situations. A number of manufacturers of industrial finishes have completely equipped laboratories and trained colorists devoted to color harmony as an art and as an instrument. Consider your product. Color can help it. Give one of these colorists a chance to show you how your product can be given added distinction.

When aluminum bronzes are again available, many manufacturers will resume using them, but a number of concerns will have discovered that the colors they turned to have many advantages. When aluminum is again available it will be well to consider the use of more color with aluminum.



An automatic spindle-type paint-spraying installation for the rapid production painting of turned furniture decorations. Photograph, courtesy of Binks Manufacturing Co.



Berger Streamlines Its

THROUGH nearly two miles of a new 9-pipe circulating system paint in as many different colors is now carried swiftly to the half a hundred points of actual application at the plant of the Berger Mfg. Division, Republic Steel Corp., Canton, Ohio. Products that are painted, as they move along the conveyorized production line, include shelving, steel furniture, kitchen cabinets, lockers and other metal products.

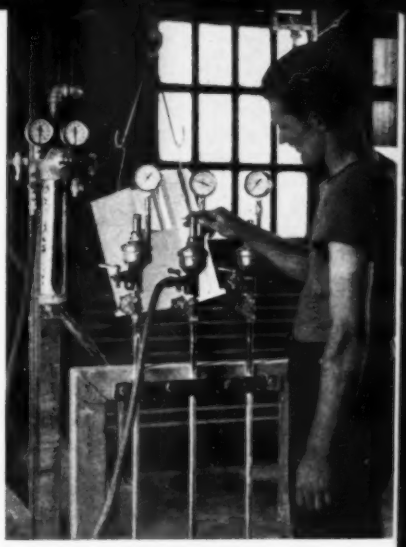
Berger recently completed a sizable addition to its manufacturing facilities. A general relocation of departments, rearrangement of plant equipment and revamping of production lines was carried through at the same time. This program afforded the logical opportunity to go ahead with a streamlining of the plant's paint-handling and paint-distributing methods.

Prior to the installation of the new centralized paint-mixing and circulating equipment, enamels and lacquers had been delivered in 50-gallon drums, by factory trucks, to four widely separated mixing stations located near the various finishing areas in the plant. There, as required, the finishing materials were prepared for use by reducing them with thinners, stirring them by hand with wooden paddles for 10 to 15 minutes, etc. Spray operators had to come to these decentralized sources of supply on an average of once every two hours to refill the containers from which they sprayed material.

Paint material mixed by hand in different locations, at different temperatures, at different times,

Opposite page: Five paint lines serve the first floor spray room which has five spray booths. Adjustable fluid regulators, directly above operators, regulate spraying pressure obtained from each pipe line.

Right: This illustration shows a supervisor adjusting pressure regulators in the paint line at a second-floor spray booth.



Its Paint Distribution System

and by several individuals, could not be strictly uniform in viscosity, specific gravity or degree of agitation—all of which have a direct bearing on the color uniformity to be obtained.

Centralized Mixing of Paints Offers Many Advantages

Certain advantages to be derived from the centralized mixing of paints were, therefore, fairly obvious. Most important, continuous mechanical agitation could be used, a more complete dispersement of pigments could be obtained, and a homogeneous solution could be maintained at all times. Also, a more uniform temperature could be maintained in a well equipped mixing room. Viscosity and specific gravity tests could always be made under the same conditions and would, therefore, be more directly comparable. Moreover, there could be undivided responsibility assigned to a single individual placed in charge of mixing operations on each turn. The moving of paint materials by truck throughout the factory could be eliminated. Finally, the fire hazard, which is always present when handling inflammable materials, such as enamels and lacquers, could be materially reduced.

Once it was decided to centralize the mixing operations, it was only a step further to give serious consideration to the development of a system of distribution of the paints which would eliminate the necessity for operators leaving their stations to refill their containers.

As finally evolved, two centralized mixing and paint storage

rooms were established. From each of these rooms circulating systems fan out to several points on two floors of the plant. The larger of the two mixing rooms has 20 mixing tanks, 14 of which serve a group of seven paint-circulating systems. Five of the seven lines carry paint to an equal number of spray booths in the first floor. Two of the five lines continue to a group of four spray booths on the second floor. A sixth paint line serves the second floor booths only. A seventh line runs to a group of dip-enameling tanks.

main mixing room to the dip enameling area, where there are three outlets for three dip tanks. 1000-ft. in length, ¾-in. pipe was used on all distribution lines having a total length of 1000-ft. or more. For all runs of less than 1000-ft. in length, ¾-in. pipe was used. In every case the same size pipe was used for the entire length of a line. For all changes of direction, 12-in. minimum radius bends were used instead of pipe fittings.

The various pipe lines are currently being used to circulate the colors listed in Table I.

Automotive display cabinets	Product to be Painted
Green dipping enamel	Shelving
White synthetic enamel	Roaster cabinets
Gray synthetic enamel	Liquid gas cabinets
Green synthetic enamel	Furniture
Black synthetic enamel	Furnace jackets; sink cab. bases
White synthetic enamel	Kitchen cabinets
Ivory synthetic enamel	Automotive display cabinets
Olive Green lacquer	Locker Door & Frame Assemblies
Brown lacquer	Locker Door & Frame Assemblies

Table I—Colors of materials in pipe lines and the products on which they are used.

The smaller mixing room has nine mixing tanks from which two circulating systems carry paints to the locker assembly lines.

Together, these two rooms provide air-conditioned storage facilities for more than 20,000 gallons of enamels and lacquers, maintaining a year-round temperature of 78°F.

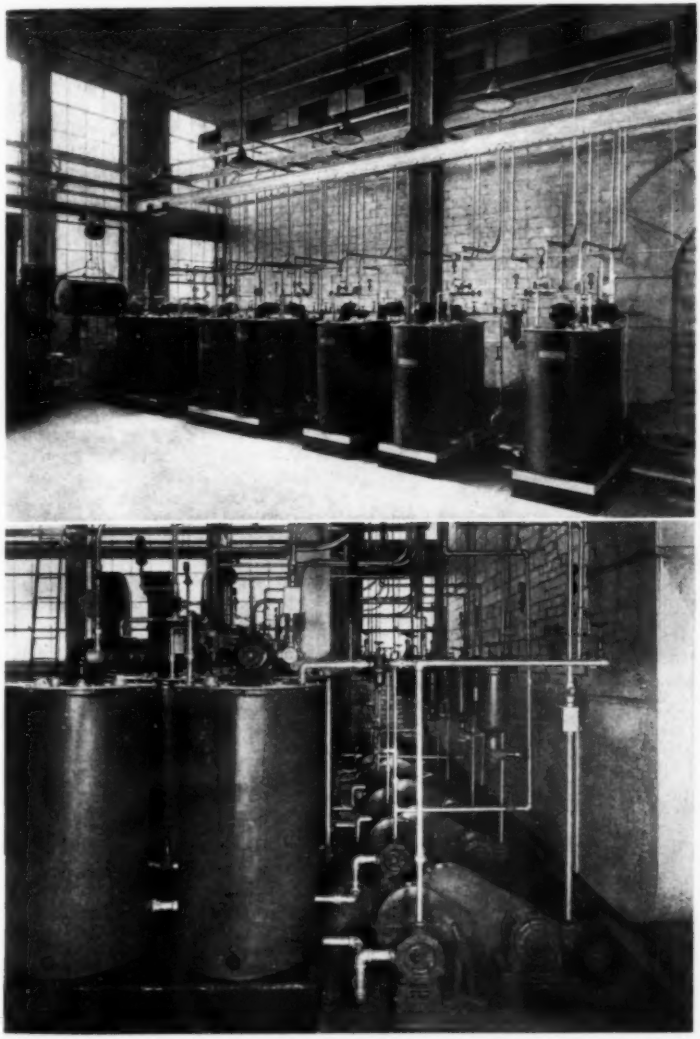
Circulating Paint Lines

The first-floor spray room, with five lines serving each of five spray booths, is about 300-ft. from the larger mixing room. Three of the four booths on the second floor, each served by three paint lines, accommodate two operators each, making a total of seven work stations involved. The longest distribution line, 1600-ft., runs from the

Back in the mixing rooms the circulating units, which mix the paint materials and feed them into the distribution lines, are made up of a pair of mixing tanks (one used for mixing, one serving as a reservoir) a pump unit, a filter, and the necessary valves, gauges, and piping to and from points of use.

Modern Mixing Tanks

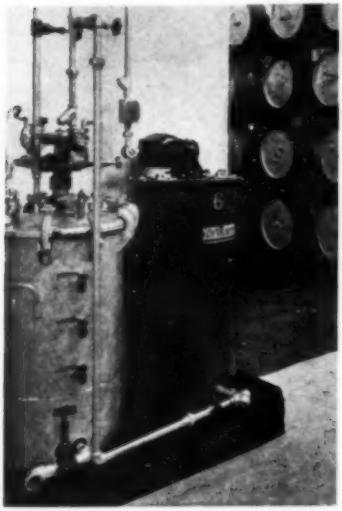
Each tank is equipped with a mechanical agitation unit. A vertical shaft, extending nearly down to the bottom of the tank, is fitted with two aluminum paddles of the propeller type. A ¼-hp., explosion-proof, gear-head motor, mounted on top of each tank, is used to revolve the paddles at 59-r.p.m. Anti-whirl baffles are weld-



Two views of the mixing and circulating units which supply paint to seven paint distribution systems. Each mixing and circulating tank has its own pumping unit and filter. The mixing room is air-conditioned, using an exhaust system which withdraws air from both a low and a high level to maintain a year-round temperature of 78° F.

ed to the inside of the tanks to prevent swirling of the material. The paddle blades are designed with an angle of pitch which tends to throw or lift the paint material upward as they are rotated. In this way the heavier pigments, which otherwise would tend to settle out of solution with the lighter solvents, are kept thoroughly mixed.

Primarily there is no difference between the function performed by the larger group of 14 tanks and the smaller group of six tanks, which are located along the opposite wall of the same room. They are all mixing tanks equipped with mechanical agitators. However, there is a difference in the way the tanks are used. The larger group is operated in conjunction with the seven circulating systems for handling production colors. The smaller group is used for mixing batch quantities of paint required for short runs of special colors.



One of the two compressed-air circulating systems in the smaller mixing room from which paint is circulated.

Each of the seven circulating systems in the larger mixing room is equipped with an internal-gear type of pump driven by a 1-hp. explosion-proof motor. These pumps deliver five gallons per minute.

In the smaller mixing room compressed air is used to force the paint out into the lines. Small air-motor-driven internal-gear pumps keep the liquids circulating. Less expensive than the others, this type of unit is satisfactory for short runs of pipe, which, as in this case, have only one or two outlets.

Located in each pipe line system, just beyond the pump, is a mechanical filter. The circulation cycle is from the tank to the pump, through the filter, out into the line and return to the tank. Consequently the paint is continuously filtered as it is circulated and before it enters a distribution line.

To maintain uniform spraying pressure, each outlet in each pipe line is provided with a fluid regulator to reduce the line pressure to the desired spraying pressure. Each regulator has a removable key adjustment and a pressure gauge for indicating the selected spraying pressure. Only the supervisor is provided with a key to operate the regulators. This centers in him the responsibility for always using the correct spraying pressure.

The advantages derived from establishing the paint-circulating system in conjunction with the centralized mixing and storage facilities are already returning handsome dividends on the investment.

There is no longer any chance of dilution of the paint or of dirt getting into it, since it is now de-

Because this centralized paint-mixing and distributing room can be kept at a uniform year-round temperature through air-conditioning, it has become feasible to buy and store large quantities of finish materials.

livered to the spray guns exactly as mixed. With each outlet having an individual pressure control, it is possible to obtain and maintain a uniform spraying pressure — which is also the correct pressure for the particular application of enamel or lacquer used.

Regardless of the location in the plant, the paint is now sprayed under the same conditions of pressure, viscosity and specific gravity. This is particularly important where parts finished on different production lines are subsequently expected to match identically, as to color, in final assembly. Finally, due to the large storage facilities now available and the ability to maintain a uniform temperature of 78°F. the year around, larger quantities of paint materials can be purchased at one time, and the last step provided in insuring uniformity of color.

The Facts About Infra-Red

A colorful and informative booklet under the above title has been published for free distribution by Ault & Wiborg Corp., 75 Varick St., New York, N. Y.

It contains 10 pages printed in two colors and is bound in gold covers printed in red and black. The contents include a reprint of M. M. Wilson's article describing the application of finishes to infra-red operations, and the places where infra-red has proved practical and impractical as a finishing method. Also included is a series of questions and answers on infra-red finishing problems.

Booklet About Scale and Rust Removal

The revised third edition of an illustrated 20-page booklet just issued by Oakite Products, Inc., 57 Thames St., New York, N. Y., describes improved, safe methods for quickly removing water scales, rust and similar deposits from over 29 different types of water-cooled or water-circulating processing and other equipment. Concise data is given on Oakite Compound No. 32, a specially designed material which, because of its high scale and rust removal properties and wide range of activity, helps eliminate the need of time-consuming mechanical methods for de-scaling equipment.

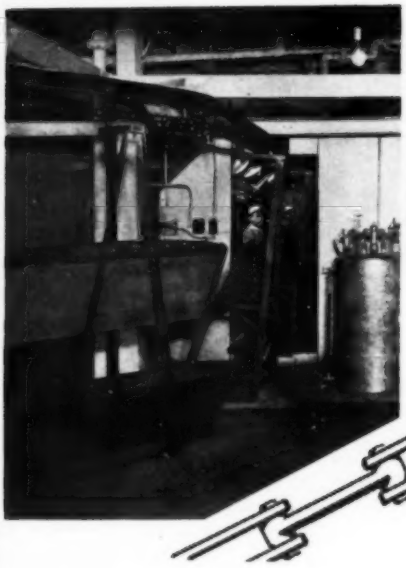
In addition, the booklet includes information on various other types of work where safe, fast, effective removal of scale or rust is essential in connection with equipment operation or for appearance. Copies available upon request.

Free Book on Spray Booths, Ovens Metal Washers, Exhaust Systems

The Newcomb-David Co., 5741 Russell St., Detroit, Mich., has issued a new 60-page catalog covering spray booths, drying ovens, metal-parts washers, exhaust systems, dust collectors and miscellaneous sheet-metal equipment. The book contains many interesting illustrations.

Of particular interest is a 28-page section identified as a "Handbook of Sheet Metal Engineering Data." This portion of the catalog provides a compilation, from a number of authoritative sources, of tables, charts and general information which are of value to the engineer or draftsman faced with problems of design, installation or operation of sheet-metal equipment.

The 8½x11-in. loose-leaf pages are bound in a heavy-paper blue cover attractively lettered in orange and silver.



Conveyor

THE use of a modern conveyor system in the finishing room is no longer an experiment or a dream. It has been proved over and over again by users that modern conveyors are not only practical but they are a vital and necessary part of the furniture factory of today.

We have been operating conveyor systems for several years now (our company owns and operates six furniture plants each of which is equipped with a conveyor system in the finishing room) and we have found by experience that conveyorized furniture finishing is far superior to the old method of finishing for several reasons, a few of which I list as follows:

1) A conveyor provides a steady systematic and orderly movement of the work in process, thus preventing a jam or tie-up in moving goods from one operation or room to the other.

2) It eliminates hand transferring, pushing, trucking, etc., of furniture over rough floors, which many times breaks glue joints or legs, or scars the furniture by allowing one piece to be bumped or rubbed against another. All of this causes expensive repairs.

3) A conveyor eliminates the handling of furniture at each work station, thus saving helpers.

4) Saves floor space and also prevents an accumulation of furniture at certain areas in the finishing room.

5) Does away with the wearing out of floors, as it is never necessary to let furniture down to the floor or push it across the floor.

6) Provides more uniform method of finishing because it makes necessary a specific and definite amount of time for each operation and conditioning or drying period —doing away with the old method of a workman spending ten minutes on a certain operation where five minutes is all that is really necessary, or vise versa.

-ized FURNITURE FINISHING

7) Assures a much faster finishing schedule because, with the use of modern synthetic finishing materials and automatically controlled heat and humidity in ovens, you can greatly accelerate your finishing schedule and at the same time produce a better finish than by the old method of finishing with old-type materials and uncertain drying.

8) Makes better and more efficient workmen, because each worker knows exactly what he has to do to each piece, unit, etc., as it passes his work station, so it makes him feel more responsible.

9) Greatly reduces labor costs in the finishing room (ours is 40% less than when we used the old method of finishing) which is perhaps the most important item—and certainly a problem that confronts every manufacturer of furniture.

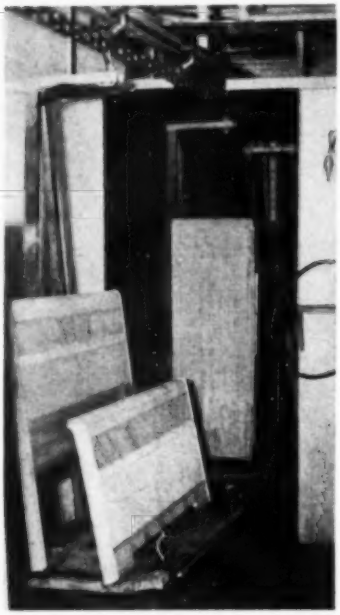
We Prefer Overhead Conveyors

As to the type of conveyor system (we have four overhead-type and two slat-type conveyors in our plants) we have found that the overhead traveling chain type of conveyor, with individual hangers, is far superior to the slat-type conveyor for several reasons, some of which I might list as follows:

BY H. W. CHESTER
Foreman Finisher

1) The goods in process, once they are loaded in the cabinet assembly room, are never taken off or transferred from the conveyor until they come from the varnish baking oven, dry and ready to handle. With the slat-type conveyor, furniture must be transferred at the end of each line, since a slat conveyor will only travel in a straight line and practically level. Overhead conveyors can be arranged to travel continuously from one floor to another, around corners, U-turns, etc.

2) The overhead type conveyor permits the maintenance of uni-



How conveyor passes through a spray booth.

form, automatically controlled heat and humidity in the drying oven, since you can have both the entrance and exit in any place desired. Also, the ovens can have baffles inside to help provide a uniform distribution of heat and humidity. It is difficult to maintain an even heat and humidity in an oven served by a slat conveyor because it is necessary to have the oven open at each end of the line.

3) The overhead-type conveyors have individual hangers which swing from a moving chain. This leaves your floor clear so you can move barrels or drums of finishing material anywhere in the finishing room without hindrance or hazard.

4) The individual platforms, which are fastened to the hangers, permit an even distribution of the goods in process along the line without jamming any items together. This allows each workman plenty of room to work on the top, bottom and around all sides of each item as it passes his station. With the slat-type conveyor the goods in process are sometimes crowded so closely together that workmen don't have room to do their work satisfactorily.

How We Operate Our Conveyorized Finishing Line

Here is how we operate a conveyor system; also the schedule in one of our plants: (This conveyor travels at a speed of 9¼-ft. per minute and handles 83 trays of furniture per hour.)

All furniture is carefully inspected in the cabinet room. One man stains all gum wood parts, parting rails, etc., with a brush, using a non-grain-raising stain. One man then loads the goods to be finished on the wooden platform of the individual hangers. These platforms are made of plywood. Each one is 26-in. deep (or wide), 56-in. long and ¾-in. thick. The trays, which hang from the chain, are 72-in. high from top of platform to top of tray. Each tray has a plywood cover 20x44-in. which fits at the top of the hanger. These covers are to prevent any accumulation of dirt or dust from falling from the chain onto goods in process.

The trays hang 80-in. apart on center, which is sufficient for bedroom furniture, but they should be 96-in. apart on center for dining room buffets, etc.

After being placed on the conveyor in the cabinet room the tops of case goods are sanded by one man who uses a portable recipro-

Finding the right combination for your oven

EFFICIENCY
ECONOMY
FLEXIBILITY
CONSIDER DEPARTMENTAL SET-UP
CONSIDER HANDLING METHODS
CONSIDER RESULTS WANTED
CONSIDER FUEL COSTS
RADIATION METHOD
CONVECTION METHOD
CONDUCTION METHOD

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FERRO INDUSTRIAL OVENS

FERRO ENAMEL CORPORATION, CLEVELAND, OHIO

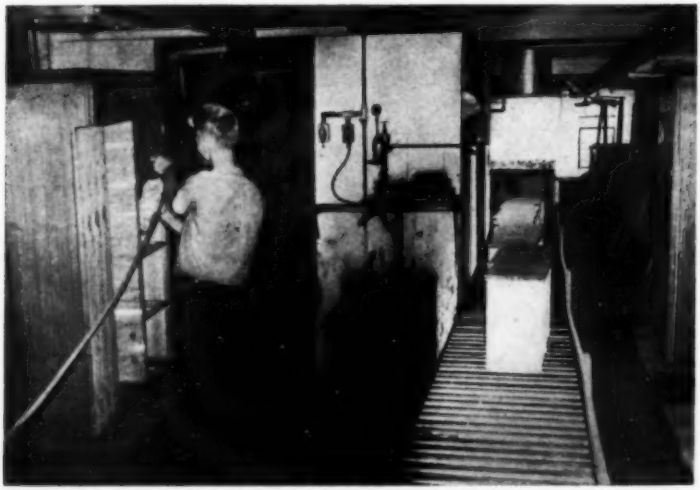
cating-block sander. This man also repairs minor defects and inspects the cases. If he finds a defective piece of furniture he sets it off and loads the empty tray with another piece that is at hand for that purpose. This prevents any empty trays from going through the finishing room.

Sap Staining; Wash Coating; Drying; Sanding; Filling

The goods move into the sap-staining booth where all sap parts on walnut, gum wood, etc., are uniformed with spray guns. This booth is also used to stain mahogany furniture. One man attends to the work at this station. Leaving this stain booth the goods travel for 12 minutes through a drying area to reach the wash-coat booth on the second floor. Here a combination stain and shellac wash-coat is sprayed on walnut, while a clear shellac wash-coat is applied to mahogany pieces. One man works at this station.

After leaving the wash-coat spray booth the goods travel to the opposite end of the building and back. This takes 35 minutes and allows the wash-coat ample time to air-dry. Following this period of drying the wash-coated goods are sanded by five men who use No. 6/0 sandpaper. From here the goods travel into the filler spray booth where one man sprays on the filler.

Our filler is a special synthetic filler formulated for force drying. It is mixed in the proportion of 6-lbs. of paste filler to the gallon of thinner. After the filler is sprayed on, one man takes a 7-in. brush and quickly drags it all over the sprayed case to break any air pockets (caused by spraying the filler) that may have formed on the



Showing drawer coater booth in middle background and gravity roller for drawers. The workman at left is blowing dust and dirt from empty cabinets before replacing drawers.

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Handsome two-tone effects can be easily achieved, and every type of striping job becomes simpler to do, when you use our special adhesive tapes for masking. These industrial tapes stick at a touch, need no moistening, fit on snugly, and come off cleanly.

To give your filing cabinets the extra attractiveness that leads to extra sales, use these time-saving, labor-saving special tapes. *Send today for free samples.*

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STRETCH OUT YOUR MANPOWER!

DEFENSE WORK is demanding more and more manpower. Today's scarcity of good workmen means that management must find ways to STRETCH OUT MANPOWER to fulfill the crying need for speed, and prevent rising production costs.

"SANDY" speeds up slow, tedious hand-sanding . . . does it THREE TIMES FASTER . . . gives you a PERFECT surface. One worker with "SANDY", can do as much work as three old-fashioned hand-sanders. Call on Sterling Engineers to help you stretch out your manpower. Send coupon to us today.

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sprayed surface. This man also fills all drawer edges with a small 3-in. brush.

Upon leaving the filler booth the filler is allowed five minutes to set. Then it is wiped off with tobacco cloth (four men); then cleaned with an air duster and pick brush, and finally wiped clean with cotton rags (four men). One man then cleans filler from the inside and outside drawer edges, etc. Twenty minutes is allowed for cleaning and picking filler.

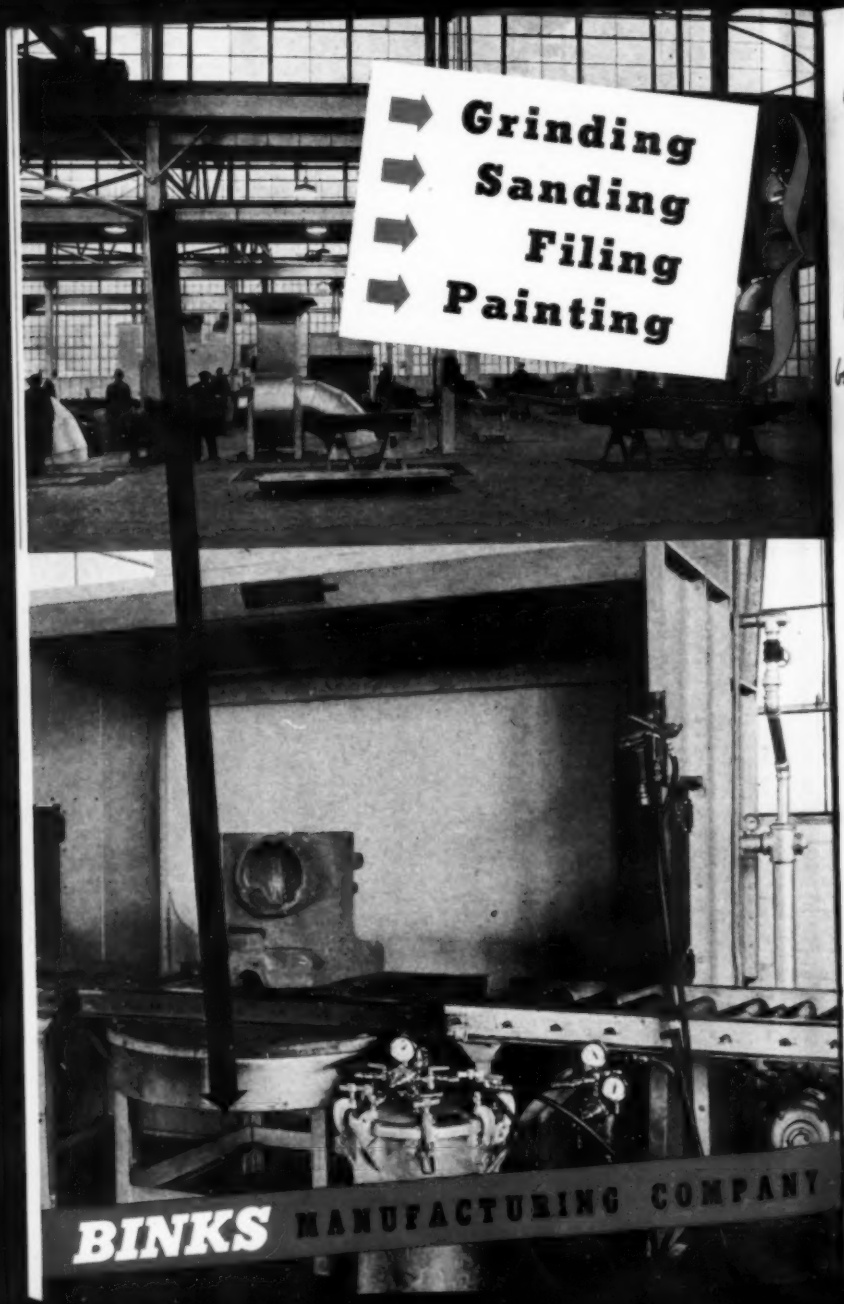
Filled furniture now moves into the filler oven where, during a period of 55 minutes, it is subjected to a temperature of 150° F. and 25% to 35% relative humidity. Leaving the filler oven the furniture travels for 35 minutes to cool off and become conditioned to the natural room air.

Drawer Coater; Sealer; Drying

At this point we have a drawer coater booth at one side of the main conveyor line. Drawers are removed from case goods, placed on a convenient platform, sprayed inside with drawer coater, and set on a gravity roller conveyor which carries them along parallel to the main conveyor line to a station where they are replaced in the cases from which they were taken originally. In the meantime the cases, minus drawers, have passed through a spray booth where they are shaded. This shading with lacquer shading stain takes care of uniforming any off-color wood that may be present in the front frames or elsewhere on the case—and none of it touches the selected wood used for drawer fronts.

(Continued on page 48)

Sanding sealer-coated tops on the conveyor line. Workmen sand with both hands, holding the sandpaper firmly against their hands and fingers with small dabs of varnish.


Grinding
Sanding
Filing
Painting
BINKS MANUFACTURING COMPANY

better working conditions

more efficient production

cleaner factories

faster work

without Dust...without Fumes

better finishes

The atmosphere in the Cincinnati Bickford Tool Company's new, highly efficient finishing department is cleaner and fresher than that found in most offices and homes. There are no dust or paint fumes to imperil the health of the men or to make their work unpleasant.

This modern industrial miracle is the result of close cooperation between the Company's engineers and BINKS MANUFACTURING CO., who designed and installed the complete BINKS Exhaust System and the Spray Painting Equipment.

Fresh, cleaned air, the temperature of which is automatically controlled, can be supplied to the finishing department at the rate of 80,000 cubic feet a minute. The capacity of the exhaust system is 75,000 cubic feet a minute. This builds up a slight pressure on the inside of the building which stops the infiltration of dust or dirt from out-of-doors. The system can force a complete change of air every seven minutes.

To give clearance for the large overhead cranes necessary to move heavy castings, nearly all exhaust ducts are under the floor. The dust, fumes and residue from sanding and painting operations are quickly carried down through grills in the floor over which the castings are placed for this work.

Large castings are painted over down draft grills. Smaller parts are finished in standard BINKS Water Wash Spray Booths. In both cases the air is washed clean of harmful or objectionable fumes before it is vented outside the building.

Regardless of the size or kind of finishing problem with which you are faced, it will pay you to call in a BINKS Engineer. He will gladly survey your needs and give you his suggestions without obligation.

To be sure of the best in Spray Painting and Finishing Equipment, remember to ask for BINKS

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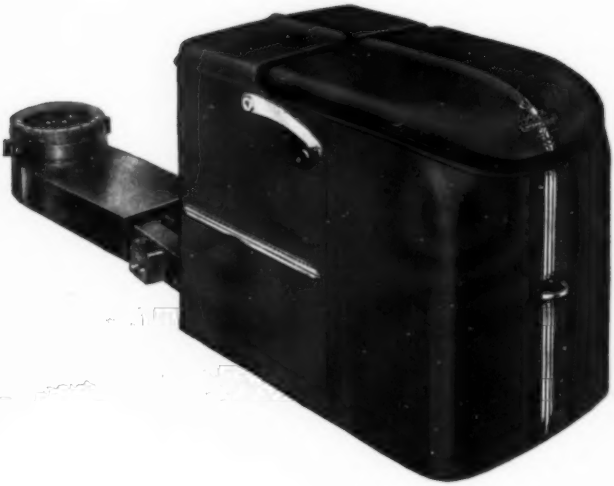


Painting Stoker Parts on a

A COMPACT and efficient conveyorized paint line is included in the production facilities for manufacturing Winkler Stokers at Plant No. 2 of the U. S. Machine Corp., Lebanon, Ind. An overhead chain conveyor sets and maintains the pace for steady production, makes the painting easier for workmen because the products are off the floor and moving forward by power, insures cleanliness and freedom from damage to freshly painted parts, and it provides that essential quality of uniformity in the spraying and baking of rich lustrous red and black enamels. The conveyor passes through the spray booth and oven.

A plan of the conveyor layout and essential stations appears in one of the illustrations with this article. The conveyor forms a squared round-corner loop, with a long hairpin extension into and out of the 9x32-ft. oven. Electric hoists operate under overhead steel rails which parallel the conveyor at the loading and unloading stations, so there is no manual lifting of bulky hoppers to the chain.

Metal Cleaning

As in all high-class production painting, a thorough cleaning of the metal surfaces precedes the application of enamel coatings. This cleaning completely removes

a Chain Conveyor Line

By W. H. ROHR, Editor

every trace of grease, oil, dirt and abrasive dust that accumulates on the surfaces and in the crevices of parts and sub-assemblies while they are going through various operations in the machine shop and sub-assembly departments.

All surfaces to be painted are scrubbed with a metal-cleaning compound and then wiped dry with wiping cloths. Following this treatment the surfaces are sanded and carefully wiped clean again. No wiping lint remains after this careful cleaning. However, as an added precaution, all seams and crevices are carefully blown clean with a compressed air gun after the parts have been hung onto the conveyor — see illustration accompanying this article.

An ingenious device for automatically blowing any dust or dirt off the overhead chain is located slightly ahead of the loading station. This device consists of two 3-ft. lengths of air pipe, set parallel to and at both sides of the traveling chain. Small holes in each pipe release jets of compressed air which are directed against the traveling chain. A trigger that con-

---

Illustration at top of page shows parts entering 2-man water-wash spray booth.

trols the air valve is tripped as each chain trolley comes along. This trigger holds the air valve open only while it is in contact with the trolley, which is perhaps 15 seconds. The arrangement is such that every inch of chain receives a thorough "blowing off" regularly as it passes this point.

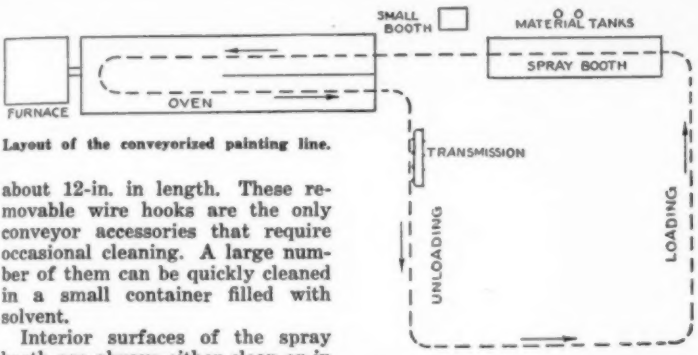
Water-Wash Spray Booth

Once they are hung in position under the overhead conveyor, the hoppers, lids and various other parts are not touched until after they have been painted and the enamel coatings have been oven baked. From the loading line the conveyor makes an easy right-angle turn to pass into and through a 2-man water-wash spray booth. This 18-ft. spray booth is of the latest type and is especially designed for the kind of products and production facilities that are present in this particular establishment.

Openings in the sides of the spray booth allow the work to enter at the left and leave at the right. The entire back of the booth is a moving wall of water which instantly carries away all overspray and paint fumes. The front is open for the two spray men. At the roof of the booth the moving conveyor chain is perfectly shielded from paint overspray by a sloping metal shield. The lower edge or lip of this shield comes close to and slightly below the line of chain links and hanger hooks. This shield extends from the entering to the exit side of the booth.

All parts hang from the chain hooks by strong bent-wire hooks

At the loading station. Workmen at right is using an electric hoist; the one at left is using compressed air to blow off any dust, dirt or lint that may be on the surfaces.



Layout of the conveyorized painting line.

about 12-in. in length. These removable wire hooks are the only conveyor accessories that require occasional cleaning. A large number of them can be quickly cleaned in a small container filled with solvent.

Interior surfaces of the spray booth are always either clean or in condition for quick easy cleaning. They are coated with a heavy grease and when accumulations of paint show up, these areas are quickly wiped clean and recoated with fresh grease.

Spraying Technique

As is generally customary wherever large smooth metal areas are to be given a solid coverage of enamel to be baked, the spraying technique here is for the first man in the large booth to spray the articles with a mist coat. This adheres well to the smooth metal surfaces and it sets sufficiently within a minute or so to provide an excellent foundation for the heavier full-coverage coat which is sprayed on by the second man in the same booth. This method of spraying helps to prevent runs or sags in the full wet coat of paint. Of course, special care is taken to keep the viscosity of the paint at the exact degree which has been determined, through experience, to give best results on these particular metal products.

Back of the spray operators are two large metal containers, each equipped with an air-motored agitator which keeps the contents thoroughly stirred and properly mixed.

Slightly beyond the exit side of the large spray booth, but facing in the opposite direction, is a midget booth about 3-ft. square. Here small parts are sprayed and hung in multiple on suitable racks or hooks, which are then hooked to the conveyor to go through the oven along with the hoppers, hopper lids and other larger items.

Oven Baking the Paint

The entrance to and exit from the oven are both at the same end and only a few feet from the exit side of the large spray booth. The conveyor line enters the oven and travels in a straight line to the far end where it makes a hairpin turn and returns in a parallel line to the exit.

The 9x32-ft. oven is heated by an automatically-fired furnace located at the closed end. Piping arrangements are such that most of the heated air is recirculated, which makes for substantial savings in the cost and utilization of heat. Recording themometers and controlling devices outside of the oven maintain uniformly even temperatures — which are important.

THE "WORRY" THAT HUNG

I. DU PONT DE NEMOURS & COMPANY (INC.), FINISH

...NG AROUND FOR YEARS . . .

and the man who threw it out!

FOR YEARS a large syrup cannery couldn't find a satisfactory coating for their labels. They tried varnish. But the syrup was canned at 180°F. and the varnished labels would stick to one another (or anything handy). Besides, vibration in cartons during shipment made the varnish scuff and powder off.

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3

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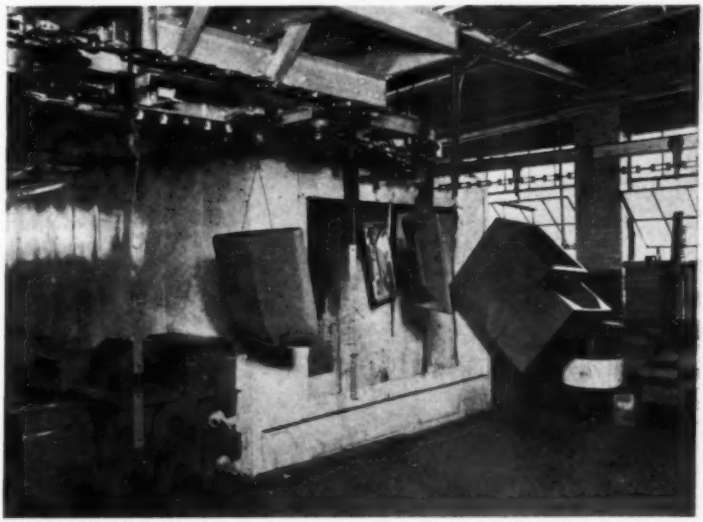


Here is the oven with its two doors side by side. The one at right is the entrance, the one at left, the exit. Above is shown the transmission that drives the conveyor.

A partition inside the oven, extends back about 12-ft. from the open end to separate and direct the heated air properly. At the open end of the oven, where you might think heated air would escape in large volume, or where the cooler room air would rush in to lower the oven temperature, there is scarcely any evidence of heat or any movement of air. A system of baffles is provided which serves as an invisible wall to prevent any outward rush of heated oven air or any inflow of lower temperature air from the spray room. Temperature inside the oven is maintained uniformly at 275°F. The length of the oven bake on any part moving through by conveyor is 30 minutes. (Conveyor speed of 2-ft. per minute allows time for each workman to do the job at his station.)

Oven baking completes the paint job. The coatings are now smooth, hard, durable, lustrous and attractive. They are in keeping with the high quality that characterizes the design, material, workmanship and performance of Winkler stokers. Hoppers and lids and certain other parts are painted red. Others are finished in glossy black.

In addition to the two spray booths on the conveyor line, an auxiliary booth is located elsewhere in the same large room. It is used for supplementary and special spraying jobs.

A final touch of finishing includes the application of a decal trademark label to every hopper. This is an attractive and colorful printed disc which is applied in the usual way and coated over with a quick air-drying clear finish.

Conveyorized Furniture Finishing

(Continued from page 37)

All furniture is carefully dusted off before it enters the sealer spray booths where a lacquer sealer is sprayed on. Three minutes elapse from the time the cases leave the shading booth until they enter the sealer booth. This allows ample time for the mild shots of shading stain to dry.

Leaving the sealer booth, the goods travel back and forth for 25 minutes while the sealer air-dries. The sealer coat is then sanded with No. 6/0 silicon carbide finishing paper. Ten minutes time is allowed for sanding sealer. The sanded surfaces are carefully wiped with soft rags which have been dipped in white gas (clean clear gasoline) containing a small bit of varnish to make the rags sticky so they will pick up dust like a tack rag.

Varnish; Oven Drying; Rubbing

The surfaces are then dusted with a duster gun and the edges of drawers are varnished with a small brush. Furniture now enters the varnish spray booth where a coat of special synthetic baking varnish is sprayed on. After this it enters the varnish oven where it travels for 75 minutes at a temperature of 155° F., with 35% relative humidity. Leaving the varnish oven the furniture travels down to the first floor where it is unloaded and usually allowed to dry overnight—depending on the type of varnish used, as we have used a varnish that can be rubbed the same day it is sprayed. Lacquers and urea-formaldehyde type synthetics can also be rubbed within one to two hours from the time they leave the baking oven.

The 18th Century mahogany furniture is dull-rubbed with pumice and oil, and waxed. The Borax and Modern are rubbed with tripoli powder and oil, then buffed to a high polish with a lamb's wool buffing wheel.

Hardware is then put on, the furniture is packed in cartons and put on an overhead type of warehouse conveyor (2800-ft. of chain) which covers two floors of a building containing 130,000-sq.ft. of floor space. This conveyor also travels along a loading platform and railway siding where as many as ten cars can be loaded at one time from the conveyor. Goods that do not go directly to cars for loading are stored in the warehouse pending shipment.

So with modern conveyor systems and finishing materials formulated to use with them, the amount of time required to finish and get a piece of furniture ready to ship can be reduced from the former 48 to 72 hours, to as low as six hours. Furthermore, the labor cost of operating a conveyor is so much less than by the old method that the average conveyor system will pay for itself in 3 to 5 years.

How the Work is Distributed

In order to give you an accurate and clear-cut picture of how one of our conveyorized finishing departments is manned, I submit the following information:

Staining, with brush, all gumwood on beds, toilets, table tops and bases before loading on conveyor, one man; staining all gumwood on case goods before loading, one man; loading all goods on the conveyor, one man; sap-staining on conveyor, one man; wash-coating, one man; wash-coat sanding, five men; spraying filler, one man; padding filler, staining edges, brushing, etc., one man; rubbing filler,

Modern Conveyor Finishing

TYPICAL INSTALLATIONS BY PALMER-BEE

Johnson-Carper Furniture Corp.

Lenoir Furniture Corp.

Heywood-Wakefield

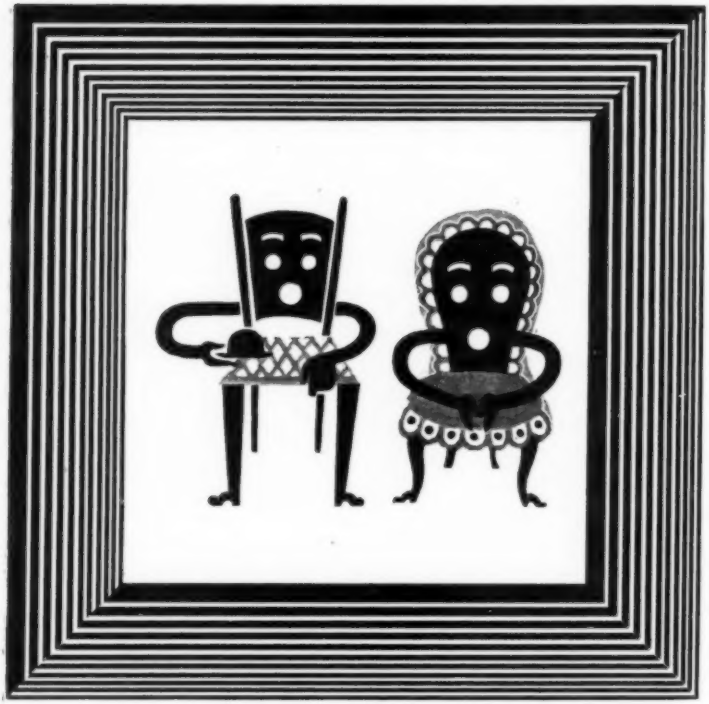
Unique Furniture Makers Inc.

Modern conveyor installations, planned and engineered by the Palmer-Bee Co., are in satisfactory operation in each of the several plants owned and operated by the Lenoir Furniture Corp., Lenoir, N. C. This company has discovered that the mechanization of all transferring and handling of furniture in process offers many economies in labor and time. Its finishing departments are operating with smoothness, precision and efficiency.

But this represents only one Palmer-Bee planned and engineered production finishing activity, as there are many other typical installations in the furniture and industrial fields. It will pay you to investigate the idea of a conveyorized finishing department. At no cost to you one of our skilled engineers will gladly analyze your plant and production. A plan and program to take in your finishing room—warehouse—cabinet room—machine room, can be worked out and submitted for your consideration without obligation. Avail yourself of this service.

PALMER-BEE CO., DETROIT, MICH.

Specialists in conveyorization of all production operations



PORTRAIT OF A PERFECT FINISH

When the furniture you turn out has a perfect finish, you can feel more than just proud. You can be sure it'll sell faster, last longer, and cut out complaints that add to your cost.

The perfect finish that fits right into that picture is the one that includes Bulls-Eye Shellac either as an undercoat or a final finish.

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There's a reason why Bulls-Eye gives you better sanding, faster

drying, greater transparency, and longer life. The fact is, the shellac is no better than the raw materials that go into it. William Zinsser & Co., makers of Bulls-Eye, start off on the right foot by selecting the finest crude shellac gum in India. In their modern bleaching plant, they extract the color—and only the color—through laboratory-controlled methods. In huge vacuum vaults, the bleached shellac loses every drop of excess moisture. To dissolve the shellac, Zinsser uses Specially Denatured Alcohol, Formula No. 1, 190° Proof, obtainable only under Government Bond.

...Is it any wonder that when a shellac is handled with such scientific precision, it emerges as the finest shellac you can buy?

On the next furniture finishing job you do—make sure you're using a shellac that gives you the most for your money—more speed in working, more transparency, more toughness. Make sure the shellac is BULLS-EYE!

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Please send me, absolutely free, valuable information on how BULLS-EYE can give me the most for my money.

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four men; cleaning and picking filler, four men; cleaning filler from drawer edges and insides of drawers and cases, one man.

Drawer coating, one man; also, one man in the shading booth. Dusting off, high-lighting, putting in drawers before sealer is applied, one man; spraying sealer, one man; sanding sealer, four men; dusting or wiping before varnish, one man; spraying varnish, one man; unloading finished goods from the conveyor, one man.

Mixing all stains, fillers and taking care of material in general, one man. Keeping all men on the conveyor line supplied with material, relieving men on the conveyor, and attending to occasional repairs, one man.

Finishing bed rails in auxiliary booth on first floor, two men. For cleaning and sweeping, one man. We have a total of 40 men. We now operate nine hours per day, handling 83 trays per hour or a total of 747 trays per day.

Free Book on Infra Red Baking

Practical finishers, interested in the radiant-heat or infra-red process of baking organic finishes, may obtain copies of a new bulletin on "The Uses and Limitations of Radiant Heat for Baking Organic Finishes," from Maas & Waldstein Co., makers of industrial finishes, 438 Riverside Ave., Newark, N. J.

The publication, written by G. Klinkenstein, Vice-President and Technical Director of Maas & Waldstein, discusses conditions for the efficient use of radiant-heat baking, finishes for use with the process, and other matters of importance to the finisher. Copies are available to users of finishes on request.

Book on Pickling and Neutralizing Metal Surfaces

A new 12-page booklet concisely describing how certain recently developed Oakite materials provide several improvements from both results and costs standpoints in production pickling and neutralizing operations, has just been issued by Oakite Products, Inc., 57 Thames St., New York, N. Y.

In addition to presenting formulas and charts covering the use of Oakite Pickle Control as an acid inhibitor and its advantages in reducing hydrogen embrittlement, preventing over-pickling and reducing acid fumes, the booklet also gives detailed data on other Oakite materials for neutralizing.

Pittsburgh Plate Glass Co. officials presented the Company's Newark, N. J., Paint Division with the "President's Cup" in recognition of outstanding industrial paint sales activities this year. Left to right: Richard P. Hendren, General Sales Manager of Industrial Finishes, Pittsburgh Plate Glass Co.; R. L. Clause, President; C. A. Roebuck, Sales Manager of the Newark Plant; G. D. White, Divisional Director, and E. D. Griffin, Vice President and General Manager of the Paint Division.

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Machine Tool Finishing

THE BRYANT Chucking Grinder Co., Springfield, Vermont, has developed a process of finishing the surfaces of its products, which has proved to be satisfactory both for service requirements and for appearance.

Before new castings are transferred from the foundries they are "snagged" or roughly ground all over, inside and outside. This is to remove all ridges, small projections and "high places." In some foundries the castings are also shot-blasted or sand-blasted before delivery.

When the castings arrive at the plant they are washed by brushing them with lacquer thinner. Following this, one coat of pyroxylin filler is brushed on the exterior of all iron castings to prevent rusting. The castings are then put through various machining operations. When machining has been completed the large parts are given one brush coat of pyroxylin filler and one paste coat of the same filler with a putty knife. This is followed by two brush coats of filler. Small parts are given four brush coats of filler.

Bronze and aluminum castings are given the same treatment, except that the original coat is grey primer to furnish a base for subsequent filler coats.

All exterior surfaces are rotary-rubbed with abrasive paper, using No. 80 grit abrasive paper backed with a thick rubber disc which is driven by a portable electric tool. Small discs are used where necessary to work in "pockets" of the castings. Small holes are spotted with paste filler.

The surfaces are hand sanded with No. 150 sandpaper—except that a light portable reciprocating-block sander is used on the larger flat surfaces.

Inside surfaces are cleaned, scraped and spray-coated with one coat of pyroxylin gear-box white. For this work the workman uses a pressure-cup spray which has an 18-in. extension. Low air pressure is used for this work. This is the only treatment given the insides of castings.

The outside areas are now given one coat of pyroxylin sealer. All machined surfaces are then cleaned with lacquer thinner and the parts are placed ready for assembly or temporary storage.

After the grinders have been assembled and tested, they are carefully inspected and all chipped and marred surfaces are spot-puttied with a lacquer-base material. Machined surfaces are masked with masking grease or masking tape and one coat of pyroxylin sealer is applied. This is followed with two coats of grey lacquer, sprayed on.

This process of painting gives a pleasing appearance and has been found to be entirely satisfactory. It withstands a considerable amount of rough treatment. The company uses a machine-tool lacquer which has been selected for its capacity to withstand the corrosive effect of the grinding compounds and the abrasive effects of many abrasive grits and particles of metal, under severe service conditions.—F. A. Westbrook.

New Infra-Red Drying Book

A new illustrated booklet of 16 pages has been prepared by Howard Haynes and R. L. Oetting, and published by the General Electric Co., Nela Park Engineering Dept., Cleveland, Ohio. It is priced at 15 cents. The book is bound in 2-tone blue heavy-paper covers 7x10-in., and contains many interesting illustrations and charts, along with practical and engineering information on the subject.

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RELIANCE VARNISH COMPANY
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LOUISVILLE KENTUCKY U.S.A.

Finishing School Desk Standards

WOODWORKING factories engaged in the production of school equipment and furniture are confronted with problems a little out of their line when it comes to finishing the metal standards that support the traditional school desks and the backs and seats of auditorium seating, which is so generally used in all modern schools. One puzzling problem is the economical dip-coating and baking of the japan finish used on these standards, whether they are of welded or cast construction.

In one factory this japanning process was set up as shown in Fig. 1, giving two full charges per 8-hour day. The problem presented was to increase output at this "bottleneck," as well as to reduce production cost.

Solution of the problem was brought about by a study of the dipping and baking elements of the operation, and by the adoption of material-handling facilities for the former, which reduced the time from 1½ hours to one hour per oven charge. For the latter, a study developed a japan which could be satisfactorily dried in one hour instead of 1¼ hours. Oven control, through the use of a thermostat, was also applied. With these changes in effect, the operation was ready to be planned on a more effective basis.

In Fig. 2 is shown the schedule that was finally adopted. Spaces *A* and *B* represent the elapsed time for dipping and draining the products. Space *C* represents the elapsed time for oven-baking; and *D* represents the time required to remove and replace an oven charge.

Operated as a 2-man gang, these two men performed operations *A* and *C*, keeping the oven charged at all times. The temporary services of a third man were necessary at times for removal of the work.

As a result of these changes, four full oven charges are now obtained, with no additional material charges and only a slight increase in labor charges. The job is now balanced with the production of the wood parts, and a substantial economy has been effected in production—as well as a decrease in excess inventories due to wood parts waiting for finished metal standards before shipment could be made. There is also a noticeable improvement in the quality of the product, due to better control of the baking temperature and conditions.—C. F. SCRIBNER, M. E.

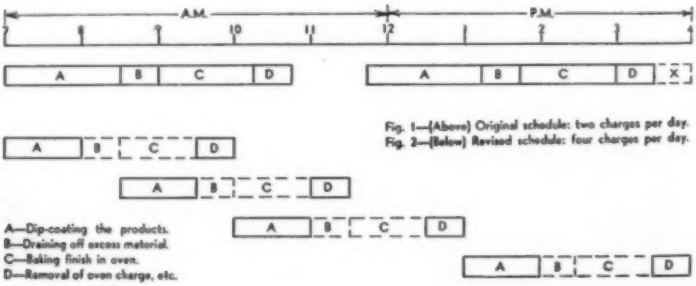

Fig. 1—(Above) Original schedule: two charges per day.
Fig. 2—(Below) Revised schedule: four charges per day.

KEEP A STEP AHEAD!

with

BERRY BROTHERS

(Non-Metallic)

MULTIFORM

Production departments like Multiform because it means fast, easy, practical application . . . no production "headaches." Covers like enamel. Gives 2-color effect with one entry into booth. Air-dry or bake. Low in cost . . . with extra savings due to minimum rejects. No special skill required.

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See the difference for yourself. Ask for sample panel . . . or if you wish, we will be glad to finish a complete article.

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JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

New Compressor Selector

A new and revolutionary air-compressor selector is announced by the Quincy Compressor Co., Quincy, Ill. R. Lehr, Sales Manager of the company, points out that the new selector was especially designed to aid in selecting the correct size and type of compressor for a specific job in one simple setting.

This new compressor selector functions like a slide rule. One setting of the scale shows correct compressor model number, free air delivery, r.p.m., piston displacement and motor horsepower required. The selector also contains figures for making allowances for loss in free air delivery at high altitudes. Tests have proved that the selector is extremely accurate for both air-cooled and water-cooled compressor applications requiring up to 80-cu.ft. of displacement. Pressures covered by the compressor selector range from 30 to 250-lbs.

This is the first time, according to the company, that a selector of this type has ever been worked out. Its application in the solution of compressor problems is effectively simplifying the work of purchasing agents, engineers, architects and salesmen in selecting the right size and type air compressor for specific applications. The new selector saves valuable time by supplanting performance curves, tables, etc.

These new compressor selectors can be obtained free of charge by writing Quincy Compressor Co., Quincy, Ill.

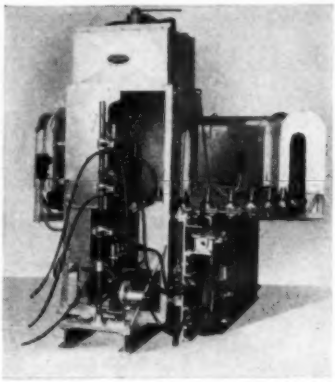
Electric-Eye Operated Sprayer

The Eclipse Air Brush Co., 400 Park Ave., Newark, N. J., is building automatic spray machines, with electric-eye control, to coat insides and outsides of projectiles in one operation.

The shells are placed on the indexed turntable manually and carried around to a position in front of automatic spray guns that coat the outside,

New . . .

MATERIALS SUPPLIES EQUIPMENT



Sprays both sides of shells automatically.

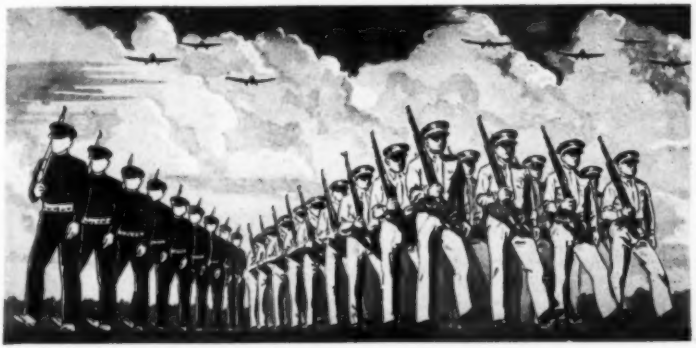
while an extension nozzle on another gun comes up to spray the inside. The action of the guns is controlled by an electric-eye device so there is no spray unless a shell is in holder.

After being sprayed, the shells enter a steam-jacketed oven that is built over the back of the table. When they emerge from the oven, the projectiles are removed by the operator.

This machine will handle 75-mm. armor piercing shells at a rate of 500 an hour.

Pipe Lacquers

The lacquer used for finishing smoking pipes presents many difficulties for the makers of the finishes and the pipes. The finish must stand up under heat. It must withstand per-



Industrial FIFTH COLUMNS

FIFTH COLUMN activities, so frequently referred to these days, are nothing new. Manufacturers have been experiencing difficulty with the Fifth Column of rust, corrosion, tarnish and spotting out for years in plants all over the country. One safe and certain method of combatting this Fifth Column of industry is to use EGYPTIAN FINISHES.

Lacquers or Synthetics . . . air dry or bake . . . spray, dip or brush . . . colors or clear . . . whatever your requirements, you will find the right finish among the complete line of EGYPTIAN FINISHES.

We would like to give you further information.

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER NEW YORK

EGYPTIAN FINISHES

EGYPTIAN *Superior* FINISHES

spiration. It must enhance and protect the beauty of the wood grain. It must substantially retain gloss and color. It must permit the products of combustion from the tobacco to be uniformly distributed throughout. It must permit the wood to breathe. Then, too, it must be adaptable over various stains used in finishing pipes. All of these requirements cause unusual formulating problems.

The Zapon Division of Atlas Powder Co., Stamford, Conn., offers a pipe lacquer which is said to solve these various difficulties. The application can be done by hand-spraying or by automatic machine spraying. After usually, a very short forced-drying schedule, the pipes are buffed. Stains and fillers ordinarily used are not raised and the color is not distorted. Pipe Lacquer in itself, is not a large volume item, but the successful solution of pipe finishing problems suggests more adaptations for many other manufactured products.

Protects Hands from Chemicals

Intensified industrial activity for defense production, and the necessity for keeping men physically fit on the job, has caused the Milburn Co., 905 Henry St., Detroit, Mich., manufacturers of Ply protective products, to introduce a new waterproof Ply No. 6 for the prevention of skin disorders caused by contact with acids and caustic compounds in both dry and aqueous form.

Ply No. 6 is an ointment which is applied over the exposed parts of the skin, leaving a thin white film, but in no way interfering with the efficiency of the men or the process in which it is involved. It serves as effective protection against strong sulphuric, muriatic, nitric, hydrocyanic and many other acids. Laboratory tests show perfect resistance to as high as a 20% concentration of nitric acid. Strong, caustic metal cleaners, soaps, biologicals, dyes, dye intermediaries, insecticides, rubber compounds and impurities, explosives and metal salts are also hazards which are nullified through the use of Ply No. 6.

The ointment requires only a thin application over the areas which are exposed. It is easily removed with ordinary soap and warm water at the end of each working period. Naturally, it is harmless to the skin.

Machine Tool Finish

The Sherwin-Williams Co., Cleveland, Ohio, announces a new and faster synthetic enamel for machine-tool castings, which is expected to be of great interest to manufacturers who are either not set up for lacquer work or who need a more resistant finish.

Typical machine tool casting, shown in its original form on the right; and finished with Kem machine tool enamel, four coats, on the left.

Known as Kem Machine Tool Enamel, the new finish is said to cut many hours and even days from the finishing time formerly required on

Workman at Oliver's Chicago plant sprays new Sherwin-Williams synthetic enamel.

Oliver Cuts Baking Time 40%

ENDS CHECKING, CHIPPING

Blistering sun, unheated sheds, driving rain, dirt and dust, fruit acids and scraping branches. These are a few of the elements that make a tractor's life anything but a happy one, and take a toll of all but the toughest enamels.

The Oliver 60—called the neatest row crop tractor in the small tractor field—now has a really element-proof finish. Oliver's old baking enamel was checking in the field and chipping during delivery and in service. Touching up after final assembly was a bother, too. Then a Sherwin-Williams man arrived on the scene.

Now Tougher, Faster

Today Oliver 60's are rolling down the line under a spray-gun that gives them the slickest, toughest finish they've ever had. They come from the oven 30 minutes sooner, too—a 40% saving on baking time! And in the field, checking has been eliminated, and chipping and touching-up is practically unheard of.

A specially-formulated Sherwin-Williams synthetic enamel did the trick.

Whether you finish tractors or telephones or tackers, you may benefit as greatly as did Oliver from a consultation with a Sherwin-Williams representative. No obligation, of course. Write or telephone the Sherwin-Williams Co., Cleveland, Ohio and all principal cities.

SHERWIN-WILLIAMS

INDUSTRIAL FINISHES

large tools, and it is said to give far greater resistance to cutting compounds.

Compared with the oil enamel method, which is said to require from 1½ to 4 days, the new Kem finishes can be applied in 5¾ to 8½ hours, four coats, thus permitting work to be shipped the same day it is finished and assembled. A typical drying schedule follows:

Spray or brush one coat of zinc chromate primer; drying time, 15 to 30 minutes. Apply machine filler and let it dry 4 or 5 hours. Put on Kem sealer gray and dry 15 to 30 minutes. Finish with Kem machine-tool gray and allow it to dry 15 to 30 minutes —or longer if desired.

Webbing Lacquer

V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago, Ill., announces a new product which is being marketed under the name, "Webbing Lacquer." According to the company's letter:

A pattern made with webbing lacquer.

"This item was produced for use in finishing marbleized effects. It greatly simplifies the method of procedure as well as improving unbelievably the quality and appearance of marbleized finishes."

This pattern of finish offers decorative effects that are interesting, novel and attractive.

New Immersion Tin Finish for Copper

The Alrose Chemical Co., of Providence, R. I., announces Bon White, a new immersion tin finish, applicable to all copper and brass surfaces. Bon White may be applied in ten seconds and can, in many instances, replace slow-boiling methods of tin plating. The solution is prepared by dissolving 16-oz. of sodium cyanide and 6-oz. of Bon White paste in one gallon of boiling water. When cooled to room temperature, no further heat is necessary and no adjustment is required, as the material is completely plated from the solution.

The life of the solution depends on the production volume. Enamel and glass containers are used and the work can be handled in baskets or on wire. Bon White assures an inexpensive, highly-effective white finish and, being pure tin, offers considerable tarnish resistance. This new finish has already found wide acceptance in many industries.

Special Finishes for Baking Industry

Finishes employed by the baking industry are important to sanitation and cleanliness. Scientifically-prepared formulations, peculiarly adapted to the industry's needs, are now being extensively used, particularly in fermentation or proof rooms, oven rooms, and bread-wrapping departments.

Specially-formulated synthetic res-

Encased in Glass

Photo by Camera Guild, N. Y.

One way to preserve beauty is to encase it in glass, but commercial products can't go to market that way. If they possess beauty they must provide their own protection . . . and that's where finish comes in.

In the first place, finish must provide the beauty . . . in the second place, finish must preserve that beauty.

And here is where we come in. Our Creative Studio conceives a finish to give beauty and attractiveness to your product . . . our plant produces laboratory-tested finishing materials to preserve that beauty.

Our Creative Studio has been very helpful to many manufacturers. It has stepped-up the sales of many products.

If you are interested in this service . . . free to reputable manufacturers . . . we will be glad to hear from you.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

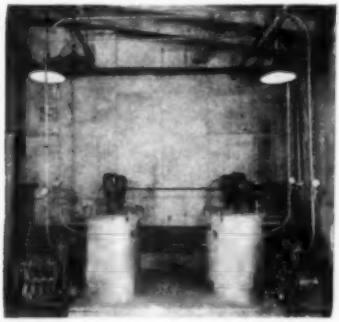
NO TAMPERING WITH QUALITY

ins are available to meet conditions found in proof rooms, paint technicians of E. I. du Pont de Nemours & Co. advise. These finishes permit condensed moisture to run off their hard surfaces without soaking as far into the film and without causing the film to soften as badly as older type paints. The finishes also have no residual odor, are easily cleaned, and resist mildew. Exteriors of dough trays must be finished to withstand rough handling.

Intensive heat, deposits on ceilings and upper walls, and high heat on the ovens combine to form a finish-destructive force in the oven rooms. Surface deposits usually contain fats and sugars carried from the ovens by hot fumes, which condense on the ceiling and upper walls. Synthetic resin finishes will resist the discoloration of these deposits more readily than softer, slower-drying finishes and will not be disfigured permanently by them. The finishes also resist high heat around ovens and keep the room whiter. Some difficulty may be encountered in removing these deposits, but they can be washed off a smooth, hard surface. It is virtually impossible to remove them from soft films.

Before applying finishes to ceilings, wall and woodwork, surface deposits should be removed. Washing with a solution of two heaping teaspoonfuls of trisodium phosphate dissolved in a gallon of warm water, followed by rinsing, is advised by Du Pont technicians. An occasional wash with a milder solution keeps the surface clean. Oven surfaces should be washed with a carbon tetrachloride solution before painting.

Conditions in the wrapping room present no unusual painting difficulties. For ceilings, walls and woodwork, a finish with a hard film will prove satisfactory, as dust does not cling as readily to hard as to soft finishes. If soiled, the hard film will be easier to wash. Machinery should be finished in a special machinery finish in white or light gray.



View of a typical small paint-circulating system which is practical for any manufacturer using 20 gallons of paint per day or more. This installation has a 2-tank system for the primer coat and a 2-tank system for the finish coat. Photograph, Binks Mfg. Co.

Air Hose Can Be Bent to Small Radius

A new light weight air hose so flexible that the ½-in. size can be bent to a 3-in. radius without collapsing or cutting off the air supply is announced by The B. F. Goodrich Co., Akron, Ohio.

The hose has been designed so that strength and efficiency are combined with minimum weight and ease of handling, and should have particular appeal to shop men handling pneumatic tools, the company's announcement says.

Made in a light gray which stands out prominently and is easy to see by the operators of shop trucks, the new hose is stocked in ½ and ¾-in. sizes. Of 2-braid construction, the hose can easily withstand working pressures of from 80 to 125-lbs.

Compound of the tube is of oil-resistant rubber, with excellent heat-resisting characteristics. The tube does not flake or clog tools. Yarn reinforcement affords a safety factor of more than five to one under a working pressure of 125-lbs., while the golden ply insulation has been especially developed to assist in flexibility and resistance to kinking.

● National defense has first call on all essential materials, including many paint raw materials used in making products for high speed industrial finishing. Manufacturers of non-defense merchandise are finding normal supplies of these products to be limited.

Many of these manufacturers have found ways to meet such handicaps with the aid of Glidden engineers, who are helping them adapt their finishing processes to other finishes on which restrictions do not apply.

Some of these paint products are new, some are improvements on basic types that were in general use before the days of synthetics. All of them are available through Glidden's more than seventy years' experience in developing and pioneering, which has given this company a practical understanding of the needs of all industries.

If restrictions threaten your finishing operations, send for the Glidden representative. The old familiar road may be barred, yet there may be available detours still open for those who have the wit and energy to find them.

THE GLIDDEN COMPANY • National Headquarters, Cleveland, Ohio

Branches or Factories in Principal Cities

Aluminum Powder Substitute

In your July issue of INDUSTRIAL FINISHING there is an item concerning an article entitled, "Substitute for Aluminum." Would you please advise us the names of the companies who can furnish such substitutes?—C. F. Corp.

We presume you mean the 2-part article entitled, "Substitution Finishes We May Turn To as a Result of Our Defense Program," the second installment of which begins on pages 36-37. If so, the author of the article replied to a similar inquiry as follows:

"I regret to say that up to the present time, I have found no perfect substitute for aluminum powder. If, however, one is willing to make concessions for lack of decorative value, there are several materials which are coming into increasing prominence in the fields of protective painting. First of these is mica and its related micaceous pigments. It is available in two types, dry-ground and water-ground. The water ground is generally preferred because, in the manufacture of this variety, the mineral is not powdered but, because of the water, is separated into thin leaves which have excellent suspension and laminating properties when incorporated into paints. For samples of water-ground mica I can refer you to three or four manufacturers.

"Insofar as other metallic pigments are concerned, there are only two which might be considered, aside from the copper bronzes, which give colorations similar to aluminum. These are powdered nickel and powdered lead. They are claimed to have some degree of protective value, but are generally in disfavor because they do not leaf and because they tend to settle badly. Powdered lead should be available, but I am not so sure that nickel has not gone the way of aluminum. For further information, I suggest you write to Metals Disintegrating Corp., Elizabeth, N. J."—PAUL WALLACE.

A feature article in this issue entitled, "Variety of Finishes Can Replace Aluminum," gives further suggestions and information on this subject.—ED.

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in Additional information relating to any of these questions and answers.

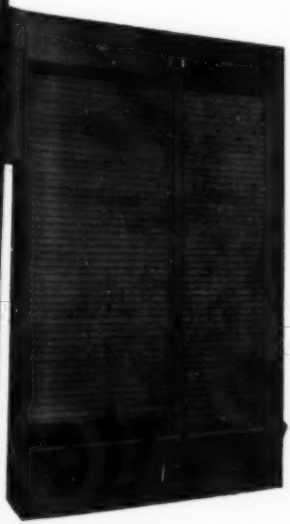
Finish for Picture Frame Moldings

We saw in the July issue of your INDUSTRIAL FINISHING Magazine, an inquiry in regard to picture-frame moldings, see page 76.

We cannot answer the question as it is put by the inquiring manufacturer, but we can give him some advice which might be of interest to him.

We manufacture a paste called "Polytect" which is widely used for finishing frames and moldings. It is applied in a single heavy coat onto the raw wood, either by spray gun or brush. Without obliterating

AMERICAN AUTOMATIC FILTERS MAINTAIN A CONSTANT UNIFORM VOLUME OF CLEAN AIR . . . WITH THE MINIMUM OF ATTENTION



The need for a higher degree of cleanliness in the make-up air supply for finishing rooms is occasioned today by the general use of thermoplastic finishes which must be kept absolutely dust free from the time of spraying until baking is completed.

In the photograph above, the air supply system consisting of fan, American Automatic Filters and heating coils is located above the finishing room which is enclosed by glass partitions.

The American Automatic self-cleaning filter has proved the most practical type for this service because of its ability to maintain a constant uniform air volume with the minimum of attention.

AMERICAN AIR FILTER CO., INC.

Incorporated

248 CENTRAL AVENUE LOUISVILLE, KY.

Send for Bulletin No. 241 which describes in detail the operation of the American Automatic filter.

AMERICAN *Automatic* AIR FILTERS

SYNTHETIC USERS

Everywhere we find users of synthetics turning to lacquers and lacquer enamels, because of the scarcity of the raw materials needed to make synthetics.

For years we have been making synthetics, lacquers and lacquer enamels and are qualified to make recommendations which fit perfectly into your present finishing schedules. Samples and full information will be sent to you gladly at your request. Write or wire today.

SEA-LAC

DURALAC CHEMICAL CORPORATION

90 LISTER AVENUE NEWARK, N. J.

details of ornament it will form a hard coat equal to three coats of the usual whiting and clay. This shortens a number of operations and means also a saving in material.

Polytect can be finished or gilded in any of the usual ways. It can be had in a number of standard colors besides white, and special shades can be made to order.

We are sending you some folders which you might forward to the inquirer . . . . AMERICAN POLYTECT CORP.

EDITOR'S NOTE: According to the company's literature, "Polytect" comes in paste form, always ready for use. It is made in two grades, for smooth and for antique finishes. It is thinned with cold water; can be tinted easily to any desired shade; can be textured while wet with simple tools; requires no preparation of the wood, save the usual spackling of joints and bad spots. It is generally applied in a heavier consistency than whiting. If multi-colored textured effects are desired, several coats (of different shade) can be applied right after each other; the texturing tool will blend the colors properly.

Spray Booth Coating

In the July issue of INDUSTRIAL FINISHING, you have an article relative to grease for spray booth coating. We would like more information as to its use and where it may be obtained.—O, Inc. (Furniture).

We suggest you purchase the cheapest grease you can buy locally. Naturally, no lubricating qualities are required, therefore you can

buy a very cheap material—just something that will stick to the sides of the spray booth and hold the sheets of paper that are pressed against it. The paper catches your overspray and, when it becomes heavily loaded with waste spray, the paper can be easily stripped off and replaced with clean paper. This coated paper should be burned soon after being removed.

Of course, this grease and paper coating is something of a makeshift. A number of different kinds of practical spray-booth coatings are on the market; we are submitting names of some of the manufacturers.—ED.

Coating for Linen Tracing Cloth

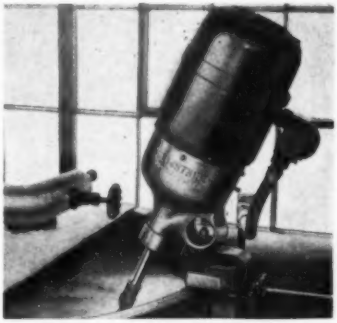
(First Letter)

After reading your magazine and noting the varied information given, I hope that you may be able to help us on a problem we have.

Our drafting department draws with pencil on linen tracing cloth. When these tracings are handled and filed the penciled linen smudges, resulting in illegible blueprints. What we are looking for is a material with which we can coat these tracings to prevent the smudging. The material must also be such that it can be erased so that changes can be made.

Do you know of any manufacturer who makes such a product? —X. Radio Corp.

One of our artists suggests what is called "Charcoal Fixative." You can probably obtain this from your local art dealer or dealer in draftsmen's supplies. We understand that an excellent "Charcoal Fixa-



Direct Drive "LIGHTNIN" Portable Mixer used for maintaining proper consistency and suspension of pigment in a special enamel. Where colors vary frequently and quantities are not too large, this type of agitator can be conveniently changed from one tank to another.

KEEP PIGMENTS IN UNIFORM SUSPENSION AND REPLACE EVAPORATION LOSSES WITH A "LIGHTNIN" MIXER

With primer dipping tanks operating 24 hours a day, consistency must be constantly maintained in the quickest, most dependable manner . . the reason more "LIGHTNIN" Mixers are being specified than ever before.

The powerful "LIGHTNIN" Double Mixing Action drives pigments up off of tank floor and keeps suspension uniform. The complete bottom-to-top turnover plus a slow rotating which completely eliminates dead spots thoroughly mixes in thinner to make up for evaporation losses.

If you have a problem keeping pigments in suspension or keeping consistency uniform, consult us. Our specialized mixing experience is yours for the asking.

MIXING EQUIPMENT COMPANY, INC.

1027 GARSON AVE. ROCHESTER, N. Y.

Power Graining Machine

1. Cycle time 25 seconds.
2. Will cover a surface up to 31" x 80".
3. Automatic roll cleaner.
4. Cuts production costs.

AMERICAN RICHWOOD PRODUCTS CO.
(FORMERLY AMERICAN ELECTROTYPE CO.)
Graining Plate Division
104 E. MASON ST. MILWAUKEE, WIS.

MARTIN'S

PRODUCTION PROVEN

INDUSTRIAL FINISHES

Finishing system scientifically developed to meet your specific conditions will (1) Cut finishing cost per unit (2) Save time by reducing the number of finishing operations.

MARTIN VARNISH CO.
900 WEST 49TH PLACE
CHICAGO, ILL.

tive" is that bearing the name of M. Grumbacher Co., 466 W. 34th St., New York, N. Y.

This is a thin water-clear liquid that can be applied with an atomizer or artist's spray gun. We understand that it is really a very thin high-grade clear lacquer.

In this connection, we are wondering if the management of your drafting department has ever considered replacing that expensive linen, which you are using, with tracing paper? Many draftsmen and artists in this part of the country are now using tracing paper with excellent results and at substantial reduced costs.—ED.

(Second Letter)

Thank you very much for the information that you supplied. It may interest you to know that we have found a suitable material for coating drawings to prevent smudging. It is known as "Spraycoat," and is supplied by Chas. W. Speidel Co. of Philadelphia, Penna. —X. R. C.

Special Spray Gun

We have come across a special spray gun that has two material nozzles leading to it which, no doubt, was intended to mix two lacquers at the same time. The name on the gun was marked "property of Mirromist Corp.", and there was an additional notation that this gun was manufactured by the Spraying Systems Co., Chicago, Ill. There was also a number on the gun: No. 339.

We are eager to get in touch with either the Mirromist Corp., or the Spraying Systems Co., and we thought perhaps you could be able to help us.

FOR BETTER VENETIAN BLIND FINISHES

We offer to manufacturers of finishes for Venetian Blinds two popular and highly successful vehicles:

For Clear Finishes BASIC R. C. 777. To produce natural finish on Venetian Blinds over shellac or varnish primer. Heavy viscosity. Stands considerable reduction. Excellent depth.

For Whites and Colors BASIC R. C. 604. A thoroughly satisfactory base vehicle, has desired flexibility, excellent flow, dries quickly and is waterproof.

SPECIAL NOTE TO CHEMISTS IN CHARGE
Paint Formula furnished with trial order of R. C. 777 or R. C. 604,—for 5-gallons at the drum price.

Manufacturers of Paint Grinders' Vehicles, Synthetics, Industrial and Architectural Finishes

basic **VARNISH AND RESEARCH CORP.**
215 NORTH TENTH STREET BROOKLYN, N. Y.
Cable Address: "BASICVARN", N. Y.

SUBSTITUTE METALS CALL FOR BETTER PREPARATION FOR PAINT

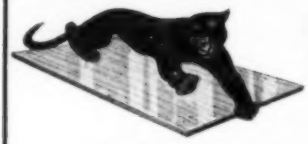
That's why Prep Products are NOW more essential than ever as insurance against paint failure and rust where second and third runs of steel and iron castings are used in place of aluminum and zinc alloys. The same holds true where organic finishes replace plating.

METALPREP Metal Cleaner and Rust Remover. Provides an ideal toothed surface for paint. Insures a firm bond to metal.

PREP-RITE A rust-inhibitive coating for iron and steel surfaces.

Write for Catalog

NEILSON CHEMICAL CO. 6562 BENSON STREET, DETROIT, MICH. (Also Los Angeles and Windsor, Ont.)



RESISTS
hard knocks

. . And gives your product lasting beauty!

Mar Proof Lacquer protects your product as no ordinary lacquer finish does! It produces a film of extreme hardness on maple, gum, mahogany and other cabinet woods . . . sheds common nicks and scratches . . . and lends beauty that "ups" your sales appeal! Made in Clear Gloss Rubbing and Satin Finish. . . . Let Mar Proof lead you to better finishing!

Send for FREE Working Samples

For best results, Use Mar Proof Lacquer Sealer for first coat.

THE SCHAEFER VARNISH CO., Inc.
Louisville, Ky.

Schaefer's
MAR PROOF
LACQUER

Perhaps you would prefer to write to them directly and ask them to get in touch with us. You could convey our interest in this particular spray gun.—D. MFG. Co.

This gun is built only for the Mirr-O-Mist Corp. It is designed for finishing mirrors. You could not use this for lacquer or anything in the form of paint that would dry.

We do not manufacture spray guns for paint, but we understand that the Paasche Airbrush Co., 1909 Diversey Parkway, Chicago, Ill., manufacures spray guns of this type and we suggest that you get in touch with them.—SPRAYING SYSTEMS CO.

With metal restricted in many industries more wood and wood finishing will soon come into use.

Canvas Boat Finish

In a recent issue we find an article reporting the inquiry of K. C. Co., with regard to finishing canvas-covered boats.

We are in the marine line of finishing paints, varnishes, brushes, and a great many of the sundries needed by the boat industry, and are well prepared to furnish an item which, we believe, will be satisfactory to your subscriber.

It is called "Ship Shape Dope" and is available in several attractive colors, as well as in clear. It produces a waterproof finish that will not chip or crack—provided it is applied properly.

For new canvas on canoes and kayaks, after the canvas has been tacked on, apply two coats of clear. This shrinks the canvas and makes it tight over the surface. Next,

apply two coats of aluminum dope. This gives an excellent foundation for the final coats of colored dope.

For old canvas, clean the surface thoroughly with gasoline, soap and warm water. Wherever the paint is cracked or alligatored, remove it with a suitable paint remover. Apply aluminum dope on all removed areas. Then coat the entire surface with one coat of aluminum dope. Finish off with one of the colored dopes.

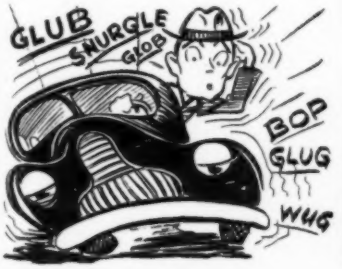
Be sure to sand between coats with fine sanpaper.—H. BEHLEN & BROS.

Frolics in the Finish Room—4

AS IT WORKED out, it was no "frolic" for the employe and he learned his lesson.

A New England manufacturer, who used considerable naphtha for reducing finishing materials, found that every Monday morning there was quite a shortage of what was in the safety tank of naphtha when the plant closed at the end of the previous week.

Unknown to his employes he poured a quart of varnish into the naphtha tank. A few days later a local garage man asked him to stop in and look at the engine of one of the employes of his factory. The



SPRAY..
with
Speed—
Economy—
Less Fumes—
Greater Coverage per gallon.
Send for Catalog 77
ECLIPSE AIR BRUSH CO.
Inc.
392 Park Ave., Newark, N. J.

WAX FREE
NON-INFLAMMABLE
REMOVER
- Quickly removes all kinds of finishes and coatings.
- Saves time, labor and material.
- Easy to apply—no after cleaning.
- Doesn't raise grain nor discolor.

SPECIAL OFFER 1 gal. testing sample at drum price F. O. B. Newark, N. J.
(Also manufacturer specially formulated non-inflammable coatings.)
INDUSTRIAL CHEMICAL DEVELOPMENT CORP.
331 MADISON AVE. NEW YORK, N. Y.

NEW! . . . . *Pulmosan*
M3C CHEMICAL RESPIRATOR

50% EASIER BREATHING
●
LIGHTER WEIGHT
●
HIGH SAFETY
●
LOW COST

Spray men will like the comfort of the M3C Respirator—you will like its low price. Aluminum body, patented rubber cushion, exhalation valve, other valuable features. Get details.

PULMOSAN SAFETY EQUIP. CORPORATION
Dept. IF, 176 Johnson St., Brooklyn, New York

Airflo IT'S THE BUY
PORTABLE PAINTING OUTFITS

Never such dependable performance, such impressive standards of quality and stability in low priced equipment . . . Unsurpassed air output, "Oiled for Life" N-D bearings, dual blower system, twin air cleaners . . . Try, then buy AIRFLO at new low prices.

CROWN SPRAY GUN MFG. CO.
1218 Venice Blvd., Los Angeles, Calif.
Warehouses in Principal Cities

car had been driven in for overhauling. Said the garage man:

"In all of my experience I have never seen an engine that was "gooed-up" and "gummed up" like this one. Frankly I don't know how to remove the stuff, except by scraping."

The moral is, of course, no more stealing of naphtha.—CARL J. SCHUMANN, President, Hilo Varnish Corp.

Editor's Note: Stories of other funny happenings in the finishing room will be welcome. Send in yours.

Letters from I. F. Readers

(Continued from page 8)

kindly advise us where we could get this French varnish, and what kind of gold powder is used to attain this imitation gold plate finish?—M. T. Co. (Lighting Equipment).

We are referring you to some of the manufacturers of metallic finishes who, we think, can supply you with satisfactory materials for your work. —ED.

Phosphorescent Paint

We are in the market for phosphorescent paint to be used in connection with neon signs. Will you please send us the addresses of manufacturers specializing in this material. —A. M. M., Habana, Cuba.

Graining Equipment

Will you please send us names and addresses of firms that manufacture and supply modern wood-graining equipment? We manufacture burial caskets.—D. C. Co.

Equipment of this kind is advertised in every issue of INDUSTRIAL FINISHING. We suggest that you read the advertisements in I. F. regularly. They are interesting and informative.—ED.

Roller Coating Edges of Sheet Stock

We have a problem of coating the edges of small dural sheet stock, ranging from .015 to .050-in. in thickness. Our application consists of

masking the complete surface and leaving the edges exposed. We then apply a coat of primer and two coats of finishing lacquer to the edges. We would like to know if there is a roller coating tool or machine that rolls a coat of enamel on edges?—S. & C. Co. (Aircraft).

A striping tool that rolls striping material on, might serve your purpose if you edge-coat only one or a few sheets at a time. We are submitting the names of manufacturers of striping tools.—Ed.

Plastic Finish

In the May issue of Industrial Finishing (page 4, "Plastic Finish") you have a notation that there is a company now manufacturing a coating that will prevent the migration of the plasticizers out of plastic surfaces. We are interested in obtaining a finish of this type and would like to know if it can be supplied in metallic colors.—A. B. C. (Telephone Laboratories).

The material referred to is a product of Fred'k. A. Stressen-Reuter, Inc., 2113 Medill Ave., Chicago, Ill. —Ed.

Steel Speed Boat Paint

Will you kindly tell me the name of a finish that will stick to the bottom of a Mullins steel-hull speed boat? This metal is supposed to be Armco Ingot Iron 18-gauge zinc-coated, by American Rolling Mills Co.

The factory finish was aluminum. It flaked off in about three weeks in fresh water. Then I tried metal primer with two coats of aluminum. This blistered and began to peel within a few weeks.—P. R.

We are referring your problem to manufacturers of marine paints and believe they can furnish a satisfactory material for your requirements. Has some reader of I.F. a suggestion?—Ed.

Lead Cable Paint

Do you know of a clear or colored lacquer or paint that could be used effectively in protecting a lead cable sheath that is starting to crystalize? The cable is exposed to the weather and the main need is to make the cable waterproof. The only motion or activity that the sheath undergoes is that due to temperature changes and wind swinging the supporting strand.

If you know of such a product that is available, would you please advise

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Write for color card and samples.

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WASTE MFG. CO.
CLAREMONT, N. H.

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me, or if you could offer any suggestions on treating this, they would be greatly appreciated.—I. H.

Readers, we have given this inquirer some suggestions, but probably not enough. Can someone submit a real answer to this problem?—ED.

Patching Material

We are trying to locate a suitable patching material to be used between lacquer coats. We are wondering if you know of such a material—one that will not shrink nor require a lot of sanding? We will appreciate any information that you can give us in this matter.—S. S. Co. (Plumbers' Woodwork).

We are sending you the names of concerns that manufacture and sell patching pastes or filiers which we believe will meet your requirements.

In a quick emergency one of our foreman finisher friends has resorted to the following makeshift:

Silicate of soda	(parts) 2
Plaster Paris	1
Lacquer sealer	(to mix)

This is mixed to knifing consistency and used like repair putty.—ED.

Paints "Streamliners"

I use paints in my work as a painter on streamline locomotives . . . on plywood, wood and metal. I am looking for a magazine that will give me useful and up-to-the-minute tips on paints and their uses. It is my desire to subscribe to such a magazine. A friend has informed me that you carried articles in the past on the painting of railway equipment. He suggested that I see what you had to offer in your magazine, INDUSTRIAL FINISHING.—F. H. O.

We believe that INDUSTRIAL FINISHING will be of interest and value to you . . . . and we are sending you a copy. —ED.

Bleaching Compound

I would like to get information on bleaching compounds to be used on pine and Douglas fir—compounds that will bleach as nearly white as possible.—E. S. C. (Factory Supt.)

Do Custom Finishing

In a recent issue of this magazine, under the heading of "Custom Finishes," you printed an inquiry sent in by the E. X. Co., who wanted to know the name of a job-finishing plant in the east. In reference to this inquiry, we are writing you and trust that you will forward our name to the E. X. Co.

During the past year we have purchased a new plant which included in our floor space and set-up more ovens and spray booths. We feel sure that we are the best equipped job-finishing shop in New England.—Industrial Enameling Corp., Boston, Mass.

We would appreciate it if you will retain our name on your files for future reference. We are thoroughly equipped to do all kinds of metal finishing including lacquering, baked enameling, wrinkling, crystalizing, etc. —Industrial Finishing Corp., Long Island City, N. Y.

We notice, in a recent issue of INDUSTRIAL FINISHING, an inquiry by E. X. Co. concerning job shops for baked enamel products. We would appreciate it very much if you would

NOW Ready to Ship This New Cesco No. 602 Healthguard Abrasive Mask and Cesco Paint Spray Mask!

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Send for samples. ***Dealers wanted.***

Rayon Processing Co., 862 Tremont St., Central Falls, R. I.

submit our name to the company in question. We have a well equipped, modern shop and are confident that we can supply them with the highest type of custom finished work.—The Bellaire Enamel Co., Bellaire, Ohio.

Electric Burning-In Irons

Please send us a list of representatives making electric heaters and devices for burning-in and repairing with stick shellac and lacquer.—M. Mfg. Co. (Furniture Novelties).

Information supplied.—Ed.

Drum Safety Hooks

We would like to refer to your April 1941 issue of Industrial Finishing magazine, concerning the rings and hooks used in safely gripping drums of material to be hoisted, moved and lowered with an overhead chain hoist. This picture is shown on page 72 of April issue.

We are eager to secure a hoist of this nature and would like for you to submit us any information that you might have concerning the rings and hooks that are shown in use in this photograph.—J. Furn. Co.

This is made and sold by Morse Mfg. Co., Syracuse, N. Y.—Ed.

Paint for Sunken Letters in Brass

We desire to obtain a thick nitrocellulose filler (paint), in black and red, to fill the deeply etched letters in brass name plates. We want the paint to fill the sunken letters nearly flush with the face of the brass plates.

We are sending you a sample plate. You will note the filler we used has dried, leaving small pin holes. We would like to avoid this and would appreciate anything you may be able to tell us in regard to it.—L. Metal Specialties Co.

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RANDOLPH "Calls The Roll" of Synthetic Gum Finishes (S.G.) in a new descriptive folder and includes some finishing hints that no shop should be without. Send for your copy today!

Dopes—Thinners
Lacquers—Synthetics

RANDOLPH
FINISHING PRODUCTS CO.
Carlstadt New Jersey

Coated Fabrics

We have before us a recent issue of Industrial Finishing, and are interested in the inquiry bearing on a lightweight canvas for canoes, etc. Will you please be good enough to supply us with the name and address of the concern involved, so that we may get in touch with them? We manufacture a widely diversified line of coated fabrics and it occurred to us that some of these items may be of interest to this inquirer.—Taunton Coating Mills, Inc., Taunton, Mass.

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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Editorial

Industrial Finishing Moves its Offices

After having been located an even 16 years at 222 E. Ohio St., INDUSTRIAL FINISHING'S offices are now moved to 1142 N. Meridian, 3rd Floor. The new quarters are really new. They are more attractive and more desirable in every respect. New equipment and added facilities have been provided. All printing and press work are performed right here in the same building in which our offices are located. Naturally, we now have better facilities to serve advertisers and readers promptly and effectively—and we are eager to do so.

Friends in and out of the city are welcome to visit us any time. We are a mile north of Indianapolis' famous landmark, The Soldiers and Sailors Monument on the Circle. Where our Meridian Street crosses Washington Street (U. S. 40) just south of the monument, is known hereabout as the "Crossroads of America."

Please remember the new address: 1142 N. Meridian, 3rd floor.

Defense Equipment Must be of Excellent Quality

Even though everyone recognizes the need for putting American defense in high gear as rapidly as possible, experts of the National Defense Advisory Commission realize they cannot afford to throw quality overboard for the sake of speed in production alone.

The problem is not merely to provide, overnight, machines and equipment with which to defend ourselves, but more specifically to obtain the best that American industry can produce in the way of airplanes, ships, tanks, bullet-proof inner tubes for Army mobile units, guns and the like.

Time is an important element in the situation, to be sure; but, in this case, time and speed are by no means synonymous. As a matter of fact, a little additional time spent now may represent the difference between victory and defeat, if this country becomes involved in hostilities.

To stand up under the terrific pounding inflicted by modern war-

fare, machines and other combat equipment must be built to different specifications than is the case with consumer goods. In many cases, too, different methods of manufacture must be employed. Mass production methods can be applied in the manufacture of war equipment in far fewer instances than in the case of items used in normal life.

Metal cleaning and paint jobs must be of excellent quality to preserve the surfaces of equipment manufactured. Much of this defense equipment will be subjected to outside exposure in severe climates, as well as to unusually hard service and abuse, which will tax the durability of any protective coatings that are put on the surfaces. Many new methods, materials and kinds of equipment for cleaning and coating surfaces will probably be developed in connection with the high-speed quality-production requirements that are being suddenly thrust upon industrial America.

Motor Trucks in Demand

The demand for motor trucks rises steadily. In the construction and enlargement of Army cantonments, Navy bases, in expanding airport facilities, in the construction of homes for workers in the huge defense industry plants that are going up practically overnight in the outskirts of large cities and in even more remote sections, in highway building and in many other activities, the motor truck is being relied upon for a greater and greater share of the transportation burden. The motor truck is flexible and adaptable. It hauls urgently needed materials across fields where there are no roads. It delivers men and supplies at the exact spot where they are needed without delay and at minimum cost.

Every part of the motor truck is covered with some kind of protective coating — principally paint that is especially formulated for the purpose—and before painting, the surfaces are carefully cleaned and smoothed. Here is an industry that will use still larger quantities of paint materials and equipment for the application of those paints.

Business Review of July Furniture Market

★ A new symphony with an overture of national defense running through all parts was launched at the recent summer national home furnishings market held at the American Furniture Mart in Chicago, July 7 to 19, 1941.

Pleasing to some, disliked by others, the new home furnishing's symphony, inspired by the national emergency which embraces the country, is nevertheless interesting and thought provoking.

The first movement concerned the appearance of a committee of five members of the Office of Price Administration and Civilian Supply, referred to as the "OPACS" at the market on the eve of its opening, July 6. Calling together all manufacturers, as well as the original "47" who had received letters from the government the week before, warning them not to raise

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prices without permission, the government let it be known that the home furnishings industry was the newest target of governmental policing. They aimed to prevent inflation.

An edict that manufacturers should make no price increases without "prior consultation," which was later softened to permit raises of not more than 5%, brought with it a steadying influence which was believed by many to have averted a "runaway" market. Although there were many manufacturers who had already raised their prices more than 5%, there was no evidence of "profiteering," as all were ready to defend their action by proving the increases were based on higher costs.

Second movement centered around the rush of 4,935 buyers into the market on the opening day, and some 4,000 more on the second and third successive days, to check prices and deliveries, and to assure themselves that the market was under control—and then the slowing down of the tempo as calm and quiet followed the hectic days of uncertainty with assurance of the stability of the market. Assured that the market was under control, word quickly spread, and dealers who had inventories sufficient to meet their needs remained at their posts until rising retail business necessitated the buying additional merchandise.

Third part of the business symphony revolved around the industry's attitude toward the governmental investigations and edicts. The manufacturers' willingness to cooperate and their relief of having a runaway market averted was clearly in evidence. Coming into the market with set quotas, both as to sections of the country and to first and second week's business based on production plans worked out at the factories in advance of the market, manufacturers were content to fill quotas and leave the market with 60 to 90-day bookings and an outlook of sane business ahead. Retailers, assured that prices were stabilized, bought only normal requirements necessary to tide them over the 60 to 90-day delivery schedules most manufacturers were following, determined to wait until fall to make future commitments.

Refraining from shopping, retailers went to established sources to fill their needs, while manufacturers made efforts only to take care of regular customers. As a result, most retailers spent only a few days at the market, placed smaller orders than would have been necessary if price movements continue to fluctuate, and did little gambling on inventories.

Finale of the market was the interest in new samples created

under the stress of the national economy, the clarification of the industry's position on certain woods, and the attitude of the manufacturer to cooperate with the government in producing good furniture, in a simpler and more efficient manner, rather than cheapen existing samples to reduce costs. —ROSALIE FLANK.

More Durable Finishes; More Decorative Variety

* One of the outstanding developments in organic finishing during the past year has been the use of fewer coats of material and the application of lighter films. While this is probably the result of pressure brought to bear in the interests of economy, there has been no reduction in quality. As a matter of fact, we have seen a marked advance in the durability and appearance of organic coatings. Home appliances, metal and wood furniture, machinery and equipment have been so finished as to far surpass any previous models.

Baking enamels have made vast strides, not only in eliminating multicoat finishes but also in allowing the use of thinner films. White and light-colored baking enamels, capable of producing a fine finish in a single thin coat, lead this group. Hot lacquers, particularly for the wood finishing trades, have made it possible to reduce the number and thickness of coats necessary for an approved finish.

Novelty finishes, such as stipples, wrinkles, spatters and similar types, have also advanced considerably in presenting single-coat application of effects never possible before. Finally, there has been a great development in primer-sealers and other combinations which perform double duty.

As I have just pointed out, the use of fewer and thinner coats of finishing materials was caused by the general demand for greater economy. However, this is not the whole story. The important point is the factors that have produced the results. One of these factors is the greater interest and appreciation of the importance of properly prepared surfaces on which to apply the material.

More attention is being paid to cleaning and phosphate coating. Another factor is the greater stress laid on control and methods. In the main, however, most of the credit belongs to the manufacturers of finishing materials and equipment. They have spared no effort nor expense in testing new materials or in applying new ideas.

The newly developed resins, pigments and solvents, have been carefully investigated in an effort to secure better materials at a lower price. Pioneer work has been done

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in developing and improving equipment, such as infra-red heating, paint-circulating systems, more efficient spray guns, etc.

Manufacturers and consumers of finishing equipment and materials have demonstrated that there are new ideas, and there will be further improvements in quality and reductions in costs.—S. W. G.

Shellac Supply and Shellac Prices

Paul W. Fisher, Executive Secretary of the American Bleached Shellac Mfrs. Assn., Inc., 65 Pine St., New York, N. Y., today announced that that Association, in co-operation with United States Shellac Importers Assn., Inc., was, in line with Government efforts to prevent price inflation of commodities, making vigorous effort to prevent higher prices of shellac in this country.

Raw shellac is imported into the U. S. almost entirely from Calcutta, India. Even in normal times its foreign price range presents considerable fluctuation, due to weather conditions, crop conditions and market situations in India, over which American importers have no control. Transportation charges to the U. S. represent a substantial portion of the selling prices in this country of imported unprocessed shellac and of bleached shellac, shellac varnish, and other shellac products in great demand here, not only for civilian use, but also for consumption in the defense program.

Up to the present time American manufacturers and importers have succeeded in bringing into this country sufficient shellac to satisfy the needs, not only of the manufacturers of electrical equipment and other things directly or indirectly required for the defense program, but have also been able to supply the needs of other consumers. A rising raw material market in India, coupled with higher transportation rates and increased insurance costs, have caused some increase, since the early part of this year, in domestic prices of shellac and shellac varnish, but that increase has been very slight compared with those which took place during and following the first World War.

Mr. Fisher stated that the two associations were making every effort to forestall further price increases in the domestic market being necessitated by further increases, speculative or otherwise, in India for raw shellac. He reported that for the protection of American consumers the two associations had recently sent joint cables to various branches of the Indian Provincial Governments in Calcutta and Patna, pointing out that not only might further increases in prices in India affect American consumers of shellac, but would also tend to prejudice the interests of Indian producers and shippers of shellac by inviting interest of consumers in less satisfactory but possibly cheaper substitutes.

Spray Painting Catalog Now Ready

The DeVilbiss Co., of Toledo, Ohio, has just issued a new catalog covering, in condensed form, its complete line of standard spray-finishing equipment for industrial use.

The new catalog, called the "IE," replaces catalog "ID-A," and brings all prices and specifications of the company's industrial line up to date.

Copies of catalog "IE" may be secured by writing to the DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio.

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1 Binks "T", 30-gals. Ditto, except with air motor agitator, $120.00.
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1 Paasche, 120-gals. 30-in. diam. 3-ft. 6-in. high, sound deadener tank, $90.00.
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"We would like to say how valuable an aid we have found INDUSTRIAL FINISHING and that we have derived sound benefit from contacts made through it in America when we were in the market for certain finishing equipment and materials." — Bannister Brothers, Bollington, Cheshire, ENGLAND.

"One of your advertisers was in our plant a few days ago, and spoke very highly of your magazine. He said he was sure it was a great help to the furniture finishing trade, stating that one of his customers told him that when he wanted any information on finishing he always consulted Industrial Finishing magazine."—H. W. Chester, Lenoir, N. C.

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